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THE MONIST

MEDITERRANEAN CULTURE AND ITS DIFFUSION IN EUROPE.[1]

ANY ONE who in investigating European origins finds himself in that epoch which the French ethnologists with DeMortillet have called the Madeleine, an epoch which may be considered as the latest period of Paleolithic Europe, will be astonished to find artistic productions wonderful in their conception and in their technical execution. The cave bear of Massat near Toulouse, the mammoth of Madeleine, the reindeer of the cave of Thayingen near Lake Constance, the horses, the human figures, the buffaloes, and other animals sculptured in bone or in horn, and found plentifully in Dordogne, and finally the bas-reliefs of Brassempouy and of Mas-d'-Azil, recently discovered by Piette, all reveal the high character of the art of this ancient epoch so far removed from modern civilisation.[2]

According to an opinion which I have expressed elsewhere,[3] these prehistoric artists having the artistic sentiment so highly developed were the precursors of the historical artists who created the marvellous works of Egypt, of Greece, and of Rome. If it is true, as I think I have shown, that a stock coming from Africa was

[1] Translated from the manuscript of Prof. Giuseppe Sergi, of the University of Rome, Italy, by I. W. Howerth, Ph. D., University of Chicago.

[2] Cf. Wilson, *Prehistoric Art, or the Origin of Art as Manifested in the Works of Pre-historic Man.* Report of U. S. National Museum for 1896. Washington, 1898. In this volume all the discoveries of prehistoric Europe and America are brought together and presented in clear and beautiful figures.

[3] *Arii e Italici*, Turin, 1898.

diffused in the quaternary epoch throughout the whole Mediterranean basin and over Europe, even to the northern part; and if it is true that this stock, which we have classified as the Eurafrican species, continued its existence into the Neolithic epoch, and afterwards into the successive ages of metals, it is to this stock that we must attribute this artistic manifestation which later was to assume such wonderful forms, and to arrive finally at the summit of the classic arts of the Mediterranean. This idea was first suggested to me by the constant convergence of the physical characters of the primitive inhabitants of these regions, and the unity of the stock is confirmed by the persistency of the artistic tendency through such distant epochs.

The Neolithic age presents a singular uniformity from prehistoric Egypt to Scandinavia, from the British Islands to the Black Sea, and throughout the Mediterranean basin. This uniformity may be observed principally in the forms and ornaments of the ceramic art, and in the working of stone. It is presented also in that curious form of burying the dead grouped together and in a cramped position, except in a few cases, and in the cave sepulchres with rooms more or less artistic, of which I have spoken elsewhere. Such a uniformity suggests and confirms the anthropological unity of the various populations, which must have carried their customs and their arts along with them. This Neolithic age so uniform in its manifestations corrects in part the discontinuity of the Magdelenian, for, at least down to the present, the manifestations of this period are not so continuous or so extended as those of the Neolithic. It is natural, therefore, to suppose that in the quaternary period the population was not yet so numerous as in the Neolithic, or so diffused. Nor could it have yet developed in some localities the artistic tendency which is seen so advanced in others.

Of this epoch, so important in the history of humanity and especially in the history of the Eurafrican species, the most advanced of which is the Mediterranean, we have many interesting evidences in prehistoric Egypt and in the eastern part of the Mediterranean basin, in both of which places a very archaic and indigenous civilisation appeared.

The discoveries of Petrie, of Amélineau, and of DeMorgan show that prehistoric Egypt was not influenced by an Oriental civilisation. The real question is in regard to the civilisation called Egyptian *par excellence* or Pharaonic, which these authors and others believe to have been Asiatic in origin.

I have spoken elsewhere of this matter and concluded that the historical Egyptian civilisation is a continuation and an evolution of the prehistoric, and that there is no necessity of admitting that there was an Asiatic immigration. To be sure, all relations with Asia cannot have been excluded, on account of the proximity of Egypt to that region. The prehistoric Egyptian civilisation is purely Libyan, and in comparison with its contemporary European civilisation it was highly developed, as may be seen by its artistic products and by its exquisitely worked flints.

If we call to mind the facts revealed in Cyprus, my opinions concerning the origin of the Mediterranean civilisation will be found to be in large part confirmed. Ohnefalsch-Richter showed by new explorations in that island how ancient its civilisation was, that it was anterior to all Asiatic influence, as it was also anterior to the same periods of Hissarlik. Relations between the valley of the Nile and Cyprus have been affirmed, and there was indeed a civilisation common to them in prehistoric times and an exchange of products. This civilisation was not Asiatic but very ancient and autochthonous and may be called Afro-Mediterranean.[1]

The Asiatic influence came afterwards, perhaps after some thousands of years, if the first period of Cyprus is, according to Ohnefalsch himself, anterior to the last stratum of Hissarlik, which stratum, as it appears to me, ought not to be considered as Asiatic, although traced in the Troad, but Mediterranean. It is exempt from Mesopotamic and Hittite influences, and is, like the primitive Mediterranean civilisation and that of Cyprus especially, and this is what induced Ohnefalsch and Myres to consider it a Cyprian invasion.[2]

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[1] Cf. Ohnefalsch, *Neues über die Ausgrabungen auf Cypern.* Verhandlungen der Berliner Gesellschaft, 1899.

[2] *Op. cit.*, pp. 39–353, note 1.

It appears to me also that, as in the lower part of the eastern basin of the Mediterranean in Libyan Egypt, in the western regions of Asia Minor, also in the western Mediterranean and in Europe and the north of the great basin, the civilisation unfolding itself as Neolithic and then as Eneolithic, and with copper together with polished stone, was autochthonous and without eastern Asiatic influences. I think there may here be seen a unity, as in the Eur-African species, not, however, without some differences of development and of form which appeared in different regions on account of biological as well as regional causes. In Sicily Orsi has discovered evidence of a primitive civilisation analogous to that of the most ancient strata of Cyprus and Hissarlik, and it seems to me that in spite of analogies something has been found peculiar to that island, an independent production with its own peculiar characters. But there soon appeared in this island an Oriental importation followed by imitation.

I have been able to prove by means of observations upon the skulls found in the first or Eneolithic Sicilian period of Orsi, that there was in that remote epoch an eastern current setting toward the west and especially into Sicily, for in the midst of Mediterranean cranial forms I have found foreign forms which I judge to be Asiatic in origin, especially from the region of the Caucasus and Armenia.[1]

But while the presence of Asiatic heads in the western part of the Mediterranean basin proves its relations with the Orient, it does not contradict what I have said in regard to the purely Afro-Mediterranean civilisation being autochthonous. These foreign heads show only the tendency of the various populations towards the commercial centers, and hence an emigration to and the mixing with those who dominated in commerce. This is how I interpret the presence of foreign elements, especially Causasian and Armenian, in the Occident in so ancient an epoch, without any influence of civilisation, as is seen by the objects found, of which some are local products, others imported as articles of commerce.

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[1] "Cranii preistorici della Sicilia." *Atti. Soc. Romana di Antropologia* Vol. VI. 1899.

But that which must have transformed the whole physiognomy and developed the latent germs of Mediterranean civilisation was the invention of the metallic arts, copper and bronze. While from the discoveries in Egypt it seems that bronze was known there relatively late, it is noteworthy that Cyprus learned the use of copper at a very remote epoch. It appears at a period anterior to the latest stratum of Hissarlik. Ohnefalsch puts almost in doubt the existence of an age of stone in Cyprus, on account of the small number of objects hitherto found in the island.[1] Myres also believes that "the stone age is apparently not represented in Cyprus as a distinct period of long duration,"[2] while copper and bronze are found in abundance. I had already written in 1895 that "the origin of the use of metals in the Mediterranean region may be found in Cyprus, the island of copper. From that point its use was diffused through other Mediterranean regions and about the Black Sea, and thence probably by the Danube into Hungary."[3] To-day this fact, that is the fact that Cyprus may have been the center of irradiation of copper and then of bronze through the Mediterranean region and through Europe, seems confirmed by the new discoveries and by the two explorers, Ohnefalsch and Myers, who have determined the contemporaneity, in part at least, of the age of copper in Cyprus and the Neolithic age, delayed in other regions. It seems to be demonstrated that the primitive types of axes and other objects came from that island, and were diffused through the Mediterranean region and through Europe.[4]

Upon the civilisation which I have called Afro-Mediterranean, and which might even better be called Afro-European, an autochthonous civilisation followed the Asiatic influences more or less strong down to the epoch of a new type of civilisation characterised by the arts and by the architecture of the city and the acropolis, the so-called Mycenæan or Ægean civilisation.

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[1] *Op. cit.*, pages 32 and 300.

[2] "Copper and Bronze in Cyprus and in Southeast Europe." *Journal of Anthropological Institute*, Nov., 1897.

[3] *Origine e Diffusione della stirpe Mediterranea*, p. 104–105. Rome, 1895.

[4] Cf. *Op. cit.*, of Ohnefalsch and Myers.

To notice the Oriental characteristics in the Mycenæan art it is sufficient to observe the gold model of a temple found in the fourth sepulcher of Mycenæ, the representation of a siege on a vase of silver, which reminds one of similar if not identical representations in Nineveh and Babylon, the lion hunt represented on a plate of bronze, some steles bearing in relief a car drawn by a horse, many engravings on gems and many other works in both gold and silver.[1]

In view of this, it is astonishing to me to read in Flinders Petrie, one of the best informed of the writers on Oriental Mediterranean antiquity, that "the whole of the early civilisation of the Peloponnesus, commonly now known as the Mycenæan period, is a branch of the civilisation of the bronze age in Europe, with but little contact with the East. Gaul, Hungary, Italy, Greece, and Libya all enjoyed a simultaneous civilisation which brought these countries far more into contact with one another than with the Asiatic lands which played so great a part in the later Greece culture."[2]

Nor have the arguments of Tsountas upon the supposed northern origin of the Mycenæans any value. Two of these arguments, moreover, have been sufficiently answered by Dörpfeld. I need only say that they refer to the forms of the roofs in the Mycenæan houses which Tsountas supposed were gabled, and to the lowness of the houses, which reminds one of the pile dwellings. Both of these forms of construction Tsountas believed to be peculiar to northern countries. Nor is the comparison with the Terramare of the valley of the Po, according to the interpretation of Pigorini, worth anything. It is even more fallacious and erroneous, as I have shown conclusively in another place.[3]

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[1] Cf. Schliemann, *Mykenae*. London, 1888. Tsountas and Manatt, *The Mycenaean Age*, London, 1887. Halbherr and Orsi, *Antichità dell' antro di Zeus Ideo*. Florence, 1888.

[2] "The Egyptian Basis of Greek History." *Journal of Hellenic Studies*. Vol. XI. 1890.

[3] Tsountas and Manatt, *Op. cit.*, pp. XXVI, XXIX, and XXX, 326; Chapters 4, 6, and 14. Sergi, *Arii e Italici, cit.*, Chap. 2.

Nor does it seem to me that the opinion of Reinach, expounded so brilliantly in his so-called *Oriental Mirage*,[1] merits discussion. I gave it some attention elsewhere,[2] but now I may pass it by because it has found no followers, nor could it have found them, being contrary to the nature of the facts, the characters of which are very evident.

According to Montelius the Mycenæans were the Tyrrhenians or Pelasgians of Asia Minor, for he writes, "It is evident that the Mycenæan civilisation in Greece is due not only to influences of another country but to the immigration of a new people. That these people, or at least a great majority of the immigrants, came from Asia Minor is proved by the important fact, which, however, has not been sufficiently noticed, that the Mycenæan tombs are of the same kind as those common in Asia Minor. . . . The lions on the famous gate of Mycenæ, and numerous other objects, point also in the direction of Asia Minor, because similar remains have been discovered there, but do not exist in Phœnicia or Egypt."[3] As I have recorded above, Montelius himself admits that the Tyrrhenians coming into Italy, or the Etruscans, were only a part of the Pelasgian emigrants from Greece united with other kindred peoples of Asia Minor.

According to Ohnefalsch, Arcadians, Achæans, Laconians, Pelasgo-Tyrrhenians, and Lycians must all have concurred in the formation of the Mycenæan civilisation.[4] I shall not say that this may not have been true, but I will say that it is only hypothetical. It is quite possible and also natural to suppose that many ethnical elements concurred in the formation and expansion of the Mycenaean civilisation. But it is difficult to determine these elements with precision and give them their national names. However this may be, all these ethnical elements belong to the Mediterranean stock, as portions of it located in different regions and with differ-

[1] *L'Anthropologie*. Paris, 1893.

[2] *Origione e diffusione delle stirpe mediterranea, cit.*

[3] "The Tyrrhenians in Greece and Italy." *Journal of Anthrop. Institute.* Vol. XXVI. 1897.

[4] *Op. cit.*, 356–365.

ent names. And, according to my conviction they belong to that Pelasgian branch of the Eurafrican species of which I have spoken, because this ethnical branch occupied from prehistoric times the eastern part of the basin comprehending Asia Minor, the Ægean sea and the Greek peninsula, as I have shown in another place.

It is quite possible, then, that the Oriental importers of the Mycenæan civilisation might have been the Pelasgo-Tyrrhenians, as Montelius supposes, united with other kindred peoples who have not received ethnological names. According to what I have already said, the Asiatic Pelasgian or Pelasgo-Tyrrhenian emigrants were not foreign anthropologically to the Mediterranean stock, and hence not even to the primitive inhabitants of the Ægean islands and of the Peloponnesus, who were also Pelasgian. These had already a pre-Mycenæan civilisation in common with the Mediterranean or the Afro-Mediterranean, and they received from new emigrants new elements of the Pelasgian civilisation transformed and evolved under Asiatic influences, probably Mesopotamian.

From this we may observe a very important fact, namely, that this civilisation which is called Mycenæan preserves in the Ægean civilisation many of its Oriental characters, and thus makes plain its immediate derivation. But when it was diffused through the west and north, in the Mediterranean region and in continental Europe, it began to lose many of these characteristics, and acquired others which were peculiar to the populations into which it entered. The Oriental character diminished in proportion to the distance from the center of propagation. When the Mycenæan civilisation was diffused through Italy and Spain its Orientality was still more attenuated, and the same was true when it was diffused through central and northern Europe.

This is quite natural, because every people welcomes germs of civilisation from other regions, but evolves them or imitates their art according to its own disposition and anterior conditions, and gives its own stamp to the imported product. Many forms of artistic motives are preserved in such a transmigration of the civil arts but they have no longer their original character.

Sicily offers a striking example of what I have just said. The

Mycenæan civilisation penetrated it, as Orsi has clearly shown, and a superficial observation of vases, bronzes, and other objects from the first Sicilian period shows the Mycenæan characteristics in many respects. These, however, represent only a part of the whole Sicilian production, which has a local and quite special character, and may not be confounded with the typical Mycenæan, or with any other whatever. There existed in Sicily a local regional production to which was added the Mycenæan importation which was imitated more or less closely. But this is all that may be observed in Sicily. No shadow of the artistic wealth which is admired at Mycenæ, at Tiryns, at Crete, and wherever the Mycenæan culture appeared, exists in Sicily. There seems to be only the twilight of the great Ægean civilisation. This is due to the lack of metals or to some other cause.

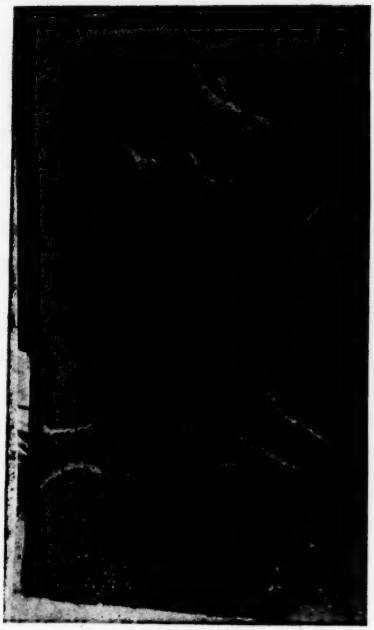

Fig. 1.
Tombstone of the Necropolis of Castelluccio (Syracuse, Sicily).

But a fact at first sight surprising is the presence of objects of a Mycenæan character in the first Sicilian period, that is the Eneolithic. I recall the two flat stones which serve as enclosures for tombs. They have spiral ornaments, but are rough and similar to and of the same type as others found at Mycenæ (Fig. 1).[1] There are other objects either imported or imitated. This is surprising because the Mediterranean Eneolithic is much more ancient than

[1] See Schliemann, *Mykenae*, figures 145–159. Orsi, "La necropoli di Castelluccio." *Bull. Paletn. Ital.*, XVII., p. 93 and elsewhere; table 6.

the Mycenæan epoch, and I find no other explanation than that in Sicily the Eneolithic age lasted longer, and until the first Mycenæan influence which arrived a little later.

It is in the second Sicilian period, with its beautiful swords of bronze and the characteristic clasps, that the most decided Mycenæan influence is found. So it seems to me that that period, called by Orsi the second Sicilian period, is really the period in which evidences of the Mycenæan civilisation are most plentiful, although productions with a Sicilian character are not diminished, as is clearly visible in the ceramic products, although, as Orsi shows, even these present different characters in the two periods.[1]

These ideas came into my mind during a recent visit to the Archæological Museum of Syracuse in which I read them as from a book in the disposition of its contents and the wonderful order given by the director, Professor Orsi, and by means of his exposition. I have only to thank him for his courtesy, and for the help which I received from him.

But where the Mycenæan culture had its Occidental expansion was, it seems to me, in Italy and in the Iberian peninsula. While there arose in the southern part of the Italian peninsula a civilisation analogous to the Sicilian,[2] in the central part from Latium to Etruria, and in Umbria to the valley of the Po, especially in the region of Bologna, there is found evidence of a culture which has given rise to various interpretations of its origin.

There, as I have shown elsewhere,[3] may be found three types of culture. In the first place, there is the primitive and very ancient culture, the Neolithic and the Eneolithic, or the Afro-Mediterranean, conscientiously and accurately studied by Colini.[4] Then, there is a second, which may be divided into two periods, the pe-

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[1] "La necropoli di Licodia Eubea," *Bull. dell' imper. Istituto Germanico.* Vol. XIII., p. 347 et seq. Rome, 1898.

[2] See Patroni, *Un Villaggio siculo presso Matera nell' antica Apulia.* Rome, 1898. Monumenti Antichi Publicati dall' Accad, dei Lincei.

[3] *Arii e Italici, cit.*

[4] *Il sepolcreto di Remedello nel Bresciano e il periodo eneolithico in Italia,* Part I., Parma, 1899. Bull. Paletn. Ital.

riod of pure bronze and the first age of iron; and, finally, there is a third which may be regarded as particularly Etruscan.

In the first case the funeral custom was inhumation in natural or artificial caves, or these wanting, the burial of corpses doubled up, as may be observed in Sicily and elsewhere in the Mediterranean region. Here the culture was the indigenous Mediterranean, without any eastern Asiatic influence but with the influence of the culture of the eastern Mediterranean region, since copper could be imported only from Cyprus.

In the second case, which reunites the culture of the metals, bronze, and iron at its first appearance, is found the funeral custom of incineration which I have admitted, and still admit, to be of Aryan origin, since it is found in all the valley of the Po in the epoch of the Terremare, in the age of bronze and in the well-tombs of Villanova, of Certosa, of Bologna, of Etruria, and in parts of Latium. But the culture of either bronze purely, or of bronze with the first indications of iron, like that which is found at Villanova and at Vetulonia, was already an Oriental Mediterranean importation with the influences of the Asiatic culture which had become Mycenæan.

The third form of culture, or the Etruscan, was substantially the same as the second. But while the second was more ancient and had already undergone a transformation, as I have just pointed out, losing in part its Asiatic color so clearly preserved in the Mycenæan civilisation of the Ægean, the third, which is a direct Etruscan or Tyrrhenian importation, preserves more than the other its Orientality, although less of the original Mycenæan or Asiatic influence. The explanation of this may be found in the fact that while in Adriatic Umbria we know of Pelasgian colonies only by tradition, and hence their culture must have been imported as a commercial product which was imitated in Etruria, there was certainly an Oriental colony which preserved many of the characteristics of the original culture. And while in the civilisation anterior to the Etruscan period the funeral practice of incineration was the dominant one, because the material power was Aryan, while the culture was Mycenæan in origin, in the Etruscan period the Aryan

dominion was overthrown and the Etruscan substituted over a great part of Italy both to the south and to the north of Etruria. Hence there is found the restitution of the ancient custom of inhumation, a custom peculiar to the Mediterranean stock.

Certainly one of the difficulties of the archæologists in recognising the Oriental origin of the Etruscan and Villanovan civilisations is in the loss or diminution of its Oriental characters in its passage to the Occident, where new centers of regional culture were formed. These naturally began with the imitation of the culture imported.

This phenomenon may be observed elsewhere, that is in central and northern Europe, as I will show further on, where the distance is greater because the importation was indirect and came from southern regions.

But the marks are so evident that Pigorini himself, who persisted in finding in the Terremare an Italico-Aryan people and a culture from the north, has had to recognise the relations between these old stations and the Ægean sea, although he considers these relations to have been late and a phenomenon of the superposition of the Mycenæan culture upon the more ancient culture of the Terremare, which had another origin.[1] This is contrary to Orsi and Petersen, who admit that there were more intimate relations between the Ægean culture and the Italian culture of the Terremare and of Villanova.[2]

It has been difficult to recognise this fact in the culture of the first age of iron in Italy, and still more difficult to recognise the analogy, and in some cases even the identity, of the bronze products found in Terremare with the Mycenæan. It is so difficult that even to-day it is in part or altogether denied. But after a careful examination, especially in the works of Montelius, of the articles found, and after a comparison, presented also by Orsi, I believe that it should no longer be doubted.

Probably, as I have said elsewhere, the introduction into upper

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[1] *Bull. Paletn. Italiana*, Vol. XX., p. 173; XXIII., p. 86.

[2] Petersen, *Bull., cit.*, XXIII., p. 81 et seq. Orsi, *passim.*

Italy of this culture took place by three routes, the sea, the Danube, and over the Alps. And this explains the later expansion of the culture of Hallstadt to Watsch, Bosnia and Herzegovina and into that extended zone which I have elsewhere described.[1] For the variations which are found it is necessary to find another cause, namely, the regional conditions in which the products were imitated, and hence varied with the greater liberty of the artist.

If we transport ourselves to the Iberian peninsula, we find the now celebrated discoveries at the southeast of Spain, which have revealed a rich and wonderful culture. There also may be found the Mycenæan culture along with the regional productions.[2] From this fact we derive the idea that the Oriental importation was like a movement which aroused a latent activity, and hence on account of the favorable geological conditions of the peninsula rich in metals, artistic production was easily raised to a higher level than that of Sicily, which was poor in metals. Nor is it out of place to suppose with Orsi that many Iberian products may have come into the island, and that there may have been besides the direct Mycenæan influence, an Iberian influence which was the Mycenæan on its way back, but made over and reformed.[3]

But after the strange suppositions of Reinach, there is felt the need of a master hand like that of Montelius to delineate the movement of the southern Oriental culture toward the west and the north of Europe. By the examination of the articles of copper and bronze, and in part also of those of ceramic, Montelius came to the conclusion that the use of these two metals, one in the pure state, the other as an alloy with tin, came into central and northern Europe from the Mediterranean region. Here are his words: "In the countries which lie at the south of the northern region, as also in western Europe, there are found much copper and tin. In these two districts the influence of the Oriental culture was more ancient than in the north, and on account of this influence they learned the

[1] *The Monist*, Jan. 1898, "The Aryans and the Ancient Italians."

[2] Siret, *Les premiers âges du metal dans le sud-est de l'Espagne.* Anvers, 1887.

[3] *Bull. Paletn. Italiana*, XXIV., 1898, p. 200.

use of metal, which use was discovered in the Orient. The northern region during the age of stone had some relations with the Orient by means of the people to the south and west.

By two routes, then, the elements of Oriental culture came to the north. One of these which I have called the Occidental, follows the northern coast of Africa to Spain, thence along France and the British Islands until it arrives at the coast of the North Sea in Germany and Scandinavia. The other, which I have called the southern, penetrating the Balkan peninsula or passing by the coast of the Adriatic Sea, then through the valley of the Danube and continuing along the German rivers, especially the Rhine and the Elbe, finally reaches the coasts of the North and the Oriental Sea.[1]

After a series of comparisons and proofs drawn from the articles found, Montelius concludes thus: "All this proves that very soon an influence from the Oriental Mediterranean region, including Cyprus, was exercised, whence the peoples of the Balkan and the valley of the Danube, derived a knowledge of the metals." And he insists even in admitting it, as he had already admitted many years before, that bronze may have come to the north from the Mediterranean culture but not from the Phœnician, nor could it have been imported by the Celts or the Germans.[2] I believe, then, that Italy must have been the center of diffusion of bronze products, but at the same time there may have been many local forms as regional products, of which, however, the type may have been derived from Italy.[3]

From all this that Montelius presents us, and which fits in perfectly with my conclusions expressed on various occasions concerning the origin of the Mediterranean civilisation and its diffusion, it results that there was a movement of culture which appears to have been carried from one place to another like a torch; in some places,

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[1] "Die Chronologie der ältesten Bronzenzeit in Norddeutschland und Skandinavien." *Archiv für Anthropologie.* XXVI., 1899, p. 456.

[2] *Op. cit.*, pp. 480, 489.

[3] *Op. cit.*, pp. 506, 509.

however, it seems like the movement of a wave proceeding from a center, enlarging its circumference but diminishing its height until it finally expends itself, leaving indications of its movements. So the Mediterranean culture appears after the primitive Afro-Mediterranean, which also in certain parts had more or less definite centers of diffusion. But the culture which we may call the culture of the metals, especially of bronze, was born in the Orient, moved toward the Occidental Mediterranean regions, and pushed along toward continental Europe by various currents at the south and at the north until it reached the British Islands on the one side, Germany and Scandinavia on the other, and finally central Russia.

But if the forms of the Mediterranean culture gradually disappeared along the routes of diffusion, there happened another very important phenomenon. New centers of production were formed, especially where the conditions were favorable, and hence regional products which were in whole or in part unlike the original models, even in technique. This phenomenon has caused us sometimes to lose trace of the origins of European culture.

Now there arises finally the question: Has the bronze culture any relation with the people called Aryan? Is it one of their importations? In spite of the fact that for some time I have attempted against prevailing opinion to show that the Aryan invaders of Europe were barbarian and savage, and had a culture inferior to the Neolithic,[1] I have admitted that they were the importers of bronze. This idea appeared to me to be true because bronze appears principally in Europe as contemporaneous with the Aryan invasion. Not being an archæologist I had not been able to examine the forms of the articles as has since been done by more competent men, and seeing that the distribution of bronze in Europe corresponded with the distribution of the Aryan culture, especially of tombs for incineration, I was induced to think that the one fact was united with the other as a manifestation of the same stock.

But the new analyses and the new facts in regard to Mediterranean diffusion set forth in the works of Ohnefalsch-Richter, of

[1] *The Monist, cit.*, "The Aryans and Ancient Italians."

Myres, of Montelius, and others; the characters of the Mycenæan culture, which is the culture of the bronze age, now better known than before, coming from the Asiatic Orient, and the diffusion of this Mycenæan culture in Europe by the movement above described, together with the formation of new centers of production caused by the propagation of the Oriental Mediterranean culture, have led me naturally to the conclusion that the Aryans were not the importers of bronze into Europe, as was believed, and as is believed even now.

A coincidence which reconciles the common diffusion of the metallic arts already noted in the eastern part of Asia Minor and the Mediterranean region, led us to suppose a causal connexion between them, as did also the thought that the origin of the two great and later Mediterranean civilisations, the Greek and the Latin, were due to the Aryan. Certainly the Aryans availed themselves of the metals which came to them from the civilisation which they were afterwards to submerge with their invasion of barbarism. But they did not contribute in developing the technique, unable as they were to practice new arts. This technique came to them always from the Mediterranean regions.

I know how much opposition this conclusion will meet with from those who are crystallised in the old ideas, born of the impressions made by primitive researches. But I am not dismayed. The future will better illuminate the darkened truth.

To complete the argument in favor of the thesis that the culture of the Eurafricans in Africa and in Europe was prior to any Asiatic invasion whatever, like that already signalised and which marked a new era in Europe, it remains for me to say something of the linear alphabetiform script.

For a long time the alphabetiform characters of Libya and of the Canaries have been known principally through the works of Faidherbe, but there has not been given to them an interpretation like that which now presents itself after the recent discoveries of prehistoric Egypt and those anterior to the Neolithic age of Europe. Letourneau in 1893 first communicated to the Anthropological Society of Paris some observations upon the alphabetiform

characters of the Megalithic inscriptions, and showed how many of these characters bore a likeness to physical characters. He pointed out the anteriority of the Megalithic characters to the Phœnician, and indicated that the constructors of the so-called Megalithic monuments had come from the south, and had learned from the races of north Africa[1] (Fig. 2).

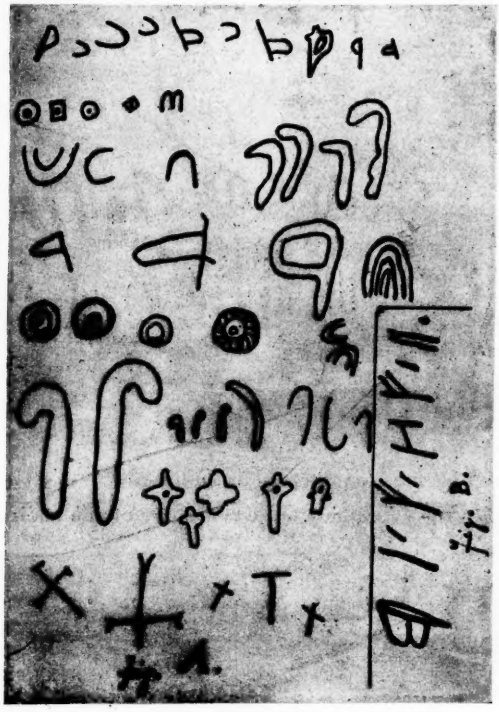

Fig. 2.
Alphabetiform Characters of the Dolmens.

But a more curious discovery was made by Piette in the most ancient epoch of the period of the dolmens and anterior to the Neolithic, that is, toward the end of the Madelene epoch, in a period of transition between Paleolithic and Neolithic Europe. He

[1] *Bulletins Société Anthropologique de Paris*, 1893.

discovered at Mas-d'-Azil in the southeast of France, in a cave, many flints colored with the peroxide of iron and with alphabetiform characters (Fig. 3), some of them similar to those already found carved in the dolmens. Piette shows that the new graphic characters of Mas-d'-Azil are identical with the Cyprian alphabet,

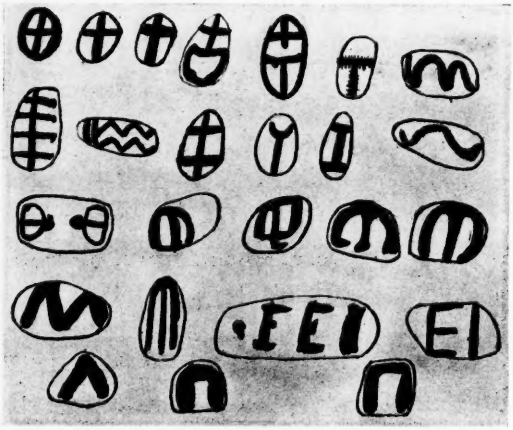

Fig. 3.
Characters on the Colored Flints of Mas-d'-Azil.

and that eight Asilian characters, of which some are Cyprian, form a part of the Ægean alphabet. Even many of the ancient inscrip-

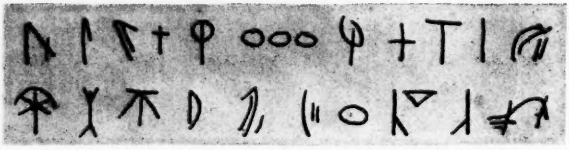

Fig. 4.
Alphabetiform Characters on Terra-cotta Vases of Prehistoric Egypt (De Morgan).

tions of Asia Minor, especially of the Troad, present characters like the pictures of Mas-d'-Azil.[1]

The discoveries of Flinders Petrie, of De Morgan and others have revealed a prehistoric script in Egypt, not the hieroglyphics,

[1] *Études d'Éthnologie pré-historique. Les Galets coloriés du Mas-d'-Azil. L'Anthropologie*, VII., 1896.

and peculiar to the Pharaonic civilisation. This script in the characters which compose it is of the same type as that already found on the engraved stones in the dolmens and on the colored flints of Mas-d'-Azil (Fig. 4).

In an interesting study Arthur Evans had demonstrated the existence of a script in the Mediterranean region, first at Crete and then in other localities of the Ægean region, anterior to the so-called Phœnician script, or that known as Phœnician. In another more recent work the ingenious author has shown a convergence of the Cretan and the Ægean script with the prehistoric Egyptian or Proto-Egyptian or Egypto-Libyan, as he calls it.[1] But Evans does not stop here in his comparison. Convinced that the prehistoric Egyptians were Libyan, and therefore of the same stock which populated Africa and the west of Egypt, he shows convergence of the Ægean script and the Proto-Egyptian with that of the ancient Libyan inscriptions which contain the well-known Libyan alphabet (Fig. 5). There is an analogous re-

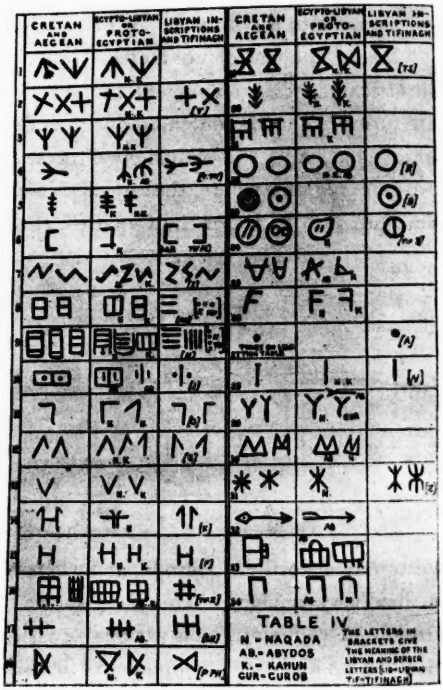

Fig. 5.
Comparative Table of Pre-Phœnician Characters. (Evans.)

[1] "Primitive Pictographs and a Pre-Phœnician Script from Crete." *Journal of Hellenic Studies*, 1896, Vol. XIV. Further discoveries of Cretan and Ægean script with Libyan and Proto-Egyptian comparisons, the *Journal, cit.*, 1897, VI. and VII.

sult as to the alphabet of the Canaries which is also held to be Libyan.

But we may extend Evans's comparison further, which is limited to the Mediterranean region and to Africa, and apply it to the characters of Mas-d'-Azil and of the European dolmens. We find, in fact, characters perfectly identical to them in the ivory tablets of Egypt (Fig. 6) and also in the Megalithic inscriptions (Fig. 2) and on some of the flints of Mas-d'-Azil (Fig. 3).

Hence the use of characters for writing is very ancient in the Eurafrican species, so ancient in fact that they have already definite forms in the Magdalenian epoch, an epoch anterior to the Neolithic age. And the diffusion of these alphabetiform characters into the regions where the species itself was disseminated, and therefore into Africa or the Canaries, the Mediterranean regions of

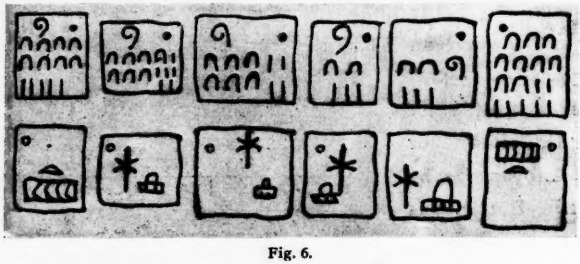

Fig. 6.
Characters Engraved on Ivory Tablets of Prehistoric Egypt.

western and northern Europe, and wherever the dolmens are found, is also very ancient. This fact shows, what I have heretofore attempted to maintain on various occasions, that this human species had its highest development of civilisation in the basin of the Mediterranean, and in its various divisions which assume different ethnical names in proto-historic and historic times. And it is found at a higher level of civilisation at the time of the invasion of the Asiatic immigrations, which submerged the civilisation and reduced the primitive inhabitants to barbarism until new germs of civilisation were born in the Mediterranean region and developed into the two great forms of Greek and Latin culture.

ROME, ITALY. G. SERGI.

KANT'S PHILOSOPHY CRITICALLY EXAMINED.

KANT'S philosophy has become the beginning of a new epoch in the evolution of human thought through a formulation of its basic problem and by starting out in the right direction for its solution; but Kant has not spoken the final word.

Kant was awakened from his dogmatic slumber by Hume's scepticism, and it was Hume's problem as to the nature of causation which prompted him to strike a new path in the conception of philosophical problems.

Kant threw light on Hume's problem by generalising it and recognising the kinship of the conception of causation to mathematics and logic, all of them being purely formal knowledge. The significance of formal thought and its power of affording *a priori* cognitions is Kant's peculiar problem.

It is generally conceded that Kant solved Hume's problem, but he failed to solve his own.

By a strange misapprehension of the nature of form and its non-objectivity, he has switched off into an idealism (so called by himself) which it will be hard to distinguish from that subjectivism which he assumed Berkeley's philosophy to be. The difference between the two (in Kant's opinion) consists in this, that according to Kant, the world itself is real but in the form in which it represents itself in space and time it is phenomenal, while he declares that according to Berkeley the world itself is "illusory appearance." Further Kant insists that the world as appearance, though purely phenomenal, is not an arbitrary illusion, but governed by laws which render it necessary in all its details.

The great merit of Kant is his wonderfully keen discrimination between the purely formal and the sensory, showing that the former is throughout universal and necessary in its principles, while the latter is incidental and concrete or particular; but he fails to apply the same discrimination to his conception of experience and to the objects of experience, and thus he limits the formal to the subject, while it is obviously the universal feature of all existence, objective as well as subjective, constituting between them the connecting link that makes science, i. e., objective cognition, possible.

Before we examine Kant's position, we must first discuss, at least briefly, Hume's problem and offer the solution in the form which Kant, in our opinion, ought to have given it. It will then be easy to point out the error that led him astray and prevented him from offering a definite and final doctrine as to the nature of form which should become the basis of all scientific inquiry, and enable philosophy to become a science as definite, or nearly so, as are mathematics and logic, or even physics.

HUME'S PROBLEM.

Locke objected to the doctrine of innate ideas, claiming that all ideas were the products of sense-impressions, and he excepted only one idea, viz., the principle of necessary connexion, i. e., causality. Hume accepted Locke's sensualism, but, endeavoring to be more consistent, drew its last consequence by denying even the idea of cause and effect as a necessary connexion. He argued that we meet with constant conjunctions in experience, but not with necessity. By habit we are compelled to expect that upon every cause its due effect will follow, but there is no reason to assume that causation is due to a universal and necessary law of objective validity. Hume saw in the relation between cause and effect a synthesis, calling it "the sequence of two objects"; and if it were a synthesis, or a mere sequence, he would be right that the connexion between cause and effect is accidental and our belief in its necessity a mere habit.

The truth is that causation is not a sequence of two objects following one another, but one process, a motion, or a change of

place; and the simplest kind of motion implies that there are at least three phases or states of things in the system in which the motion takes place: first the original condition (which for simplicity's sake we may assume to be in a relative equilibrium); secondly, the motion disturbing the equilibrium so as to make one or several elements in the system seek new places; and thirdly, the new adjustment (which for simplicity's sake we will again regard as being in equilibrium). The first phase is called the conditions or circumstances, the second is the cause, and the third the effect. Cause and effect are not combined into a unity by the compulsion of a law of necessary connexion; they are two phases of one and the same process. The duality is a product of abstraction; the unity of the two is the original fact, and we know now that causality is but another expression for the law of the conservation of matter and energy. The naturalist assumes that matter and energy are indestructible, and thus every process that takes place in nature is only a transformation. Accordingly, our belief in causation is after all, although Hume denied it, finally based upon the logical principle of identity $A = A$. It is an extension of this principle to a state of motion.

Cause, accordingly, is never an object, but always an event, viz., a motion of some kind. We cannot call the bullet the cause, and death the effect; or mercury the cause, and paralysis the effect; or worse still (as says George Lewes) that whiskey, water, sugar and lemon are the causes of punch.

We distinguish between cause and reason, reason being the law under which a single event is subsumed for the sake of explaining the effectiveness of the cause.[1]

[1] The instinct of language has here proved wiser than the scholarship of philosophers. All European languages (the Greek, the Latin, together with its derivatives the French, Italian, etc., the German, the English) distinguish between "*αἰτία, causa, Ursache* (from the same root as the English verb 'to seek') cause," and "*ἀρχή*, (i. e.. first principle) *ratio, Grund*, reason," the former being the particular incident that starts a process, the latter the *raison d'être*, the principle, or general rule, the natural law that explains it. When the two ideas are confounded, as has been done frequently by philosophers, the greatest confusion results, leading to such self-contradictory notions as "*causa sui*," "first cause," "ultimate cause," etc., which lead either to agnosticism or to mysticism. For further details

Kant, following the suggestion of Hume, devoted special attention to the problem of causality, but he solved it by simply declaring that it was a concept *a priori*, and thus belonged to the same class of truths as mathematical, arithmetical, and logical theorems. He never attempted to explain its truth, let alone to prove it, or to demonstrate its universality and necessity. Mathematicians deem it necessary to prove their theorems, but Kant, strange to say, neglected to deduce the law of causation from simpler truths or analyse it into its elements. If Kant had made attempts to analyse causation for the sake of proving its validity after the fashion of logicians and mathematicians, he might, with his keen insight into the nature of physical laws and natural sciences, have anticipated the discovery of the law of the conservation of matter and energy, and might furthermore have been preserved from the error of his subjectivism which affected the whole system of his thought and twisted his philosophy out of shape.

KANT'S PROLEGOMENA.

In the *Critique of Pure Reason* Kant's position remains unintelligible; we understand his arguments and may even approve the several statements from which they proceed, but we are astonished at the boldness of the conclusion, and fail to be convinced. His objections to the belief in space and time as objective things hold good only if space and time are assumed to be things or objects; but not if they are thought to be mere forms of objects. They are thinkable as forms of thought not less than as forms of objects. When assumed to be solely forms of thought to the exclusion of the idea that there are any objective relations corresponding to them, they become mysterious and quite mystical, and here lies the reason why Kant's *Critique of Pure Reason* is actually mystifying. He bewilders the reader. We become acquainted with his argument, but do not feel sure that we have rightly apprehended his meaning. In the *Prolegomena* Kant is, at least, not unintelli-

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see the author's *Primer of Philosophy*, the chapter on Causation, pp. 30–34, and *Fundamental Problems*, pp. 29–30.

gible. The *Prolegomena* are not deductive, but inductive. In them Kant leads us the way he travelled himself, and this is the reason of the importance of the *Prolegomena*. Kant embodied their contents in various places into the second edition of his *Critique of Pure Reason*. But the passages are scattered and lose the plainness and power which they possess in the context of the *Prolegomena*. Here we are face to face with Kant as a man; he gives us a personal reply, as if he were interviewed; and while we grant the significance of transcendentalism and the truth of many of his observations and deductions, we can at the same time understand how he arrived at errors. We can lay our finger on the very spot where he went astray, and I cannot but wonder at the courage of this undaunted thinker who abided by the consequences of an apparently trivial fallacy, due to the neglect to investigate one feature of the problem to which he devoted many years of his life in profound reflexion and close study.

Kant was puzzled that we could know anything *a priori* concerning the formal constitution of things. The celestial bodies obey laws which man develops out of his mind. That the highest (i. e., the most general or universal) laws of nature should happen to be the same as the highest (i. e., the formal) laws of the thinking mind, and yet should be of an independent origin, seemed absurd to Kant. He saw only two possibilities; either, he said, we have derived our formal knowledge from the things by experience, or we ourselves have put it into the things to which it really does not belong. The former possibility is excluded, because, says Kant (*Prolegomena*, § 9), "The properties of a thing cannot migrate into my faculty of representation," while on the other hand the purely formal truths are not derived from experience, but produced by the mind as cognitions *a priori*. Thus, Kant accepts the other horn of the dilemma, declaring (*Prolegomena*, § 36) that our faculty of cognition does not conform to the objects, but contrariwise, that the objects conform to cognition. Objects, he claimed, do not in themselves possess form, but our mind is so constituted that it cannot help attributing form and everything formal to the object of our experience.

IDEALITY NOT SUBJECTIVITY.

Now, it is true that our purely formal notions of mathematical and logical truths are ideal (made of the stuff that ideas consist of), but being purely formal they are definitely determined, that is to say that, wherever the same constructions are made, either by the operations of other minds or of natural conditions in the facts of objective reality, they will be found to be the same. Thus, our mental constructions can reconstruct the processes and formations of nature, and we can learn to predetermine the course of natural events.

Kant did not see that form might be a property of all existence and that, in that case, the purely formal in things would be of the same nature as the purely formal in man's mind. It is true that the properties of things do not migrate from the objects into the subject, but they make impressions upon the senses and these several impressions possess analogies to the qualities by which they are caused. The analogies between matter and sensation seem much more arbitrary than those between the shapes of things and the outlines of our sense-images. Nevertheless even here we grant that the reduction of the latter to universal laws is purely subjective, for there are no laws, *qua* formulated laws, in the objective world; there are only uniformities. But if we understand by the term law a description of uniformities we must see at once that there are objective realities (or rather features of reality) corresponding to our correct notions of the several formal laws.

If the uniformities of nature are not transferred to the mind directly, but if the purely formal concepts are developed independently of sense-experience *a priori*, how is it possible that the two present the wonderful agreement that puzzled Kant?

Nature is throughout activity, and so is our existence. Nature is constantly combining and separating; we observe transformations; things move about; and their constituent parts change places. Similar operations are inalienable functions of the mind. The subtlest analysis as well as the most complicated composition and

every investigation, be it ever so intricate, are mere combinations and separations, activities given together with our existence.

The arguments of Kant by which he proves the apriority of purely formal laws must be granted to be true. The source of all purely formal thought is the mind, and not sense-perceptions. They are ideal. But the mind has been built up by experience, viz., by sense-impressions of different but definite forms, and the formal order of objective nature is the mould in which the mind has been formed. The brute cannot as yet analyse sensations into their forms and materials, i. e., into the purely relational and the purely sensory features; but man can; and when he has acquired the power of abstraction he can build models of forms, exhausting the entire scope of all possible cases, and these models serve him as examples of the several analogous formations of nature. Accordingly, our mental constitution, though a subjective construction, is built up with materials quarried from the formal uniformities of objective nature. Thus the spider undoubtedly weaves his web from his own bodily self, but the materials have first been deposited there by nature. Man's mind is not less than the spider's silken thread, produced by, and remaining a part and an expression of, that great All-Being in which all creatures live and move and have their being.

There is this difference between the spider's web and formal thought: the former consists of matter, the pure forms of mathematical, logical, and other ideas are immaterial; they are abstracts made of the purely relational features of sense-impressions. They are ideal, viz., mental pictures, and as such they are subjective. But they are not purely subjective. The sensory part of a retinal image is purely subjective, but the formal preserves in a reduced size the projection of the shape of the object. Form belongs to the object as well as to its subjective image, and thus the subjective conception of form possesses an objective value.

Everything ideal is subjective, but it need not be purely subjective. Because the rational is ideal, it by no means follows that it is not, and cannot be, objective.

When we construct some purely formal configuration with our

nature-given mental operations, it will be the same as any other construction which has been made in the same way, be it in the domain either of things or of other minds. Nature performs the same operations which appear in man's mental activity. Man being a part of existence, what is more natural than that his bodily and mental constitution partakes of the same form as all the other parts of the world that surrounds him?

A great and important part of our knowledge consists of purely formal theorems; they are *a priori*. And these purely formal theorems contain actual information concerning the formal aspect of the real world. And why? Because they are systematic reconstructions of the formal features of reality by imitating operations of motion which take place throughout the universe.

All formal theorems have a general application, hence, whenever applicable, they afford *a priori* information and can be employed as a key to unlock the mysteries of the unknown.

By the rule of three we calculate the distance from the earth to the sun, and map out the paths of the several celestial bodies.

When Kant says: Our mind "dictates" certain laws to the objects of experience, he uses a wrong expression or takes a poetical license seriously. The mind "dictates" nothing to reality. Reality including its form is such as it is independently of what we think it to be. That which Kant calls dictating is a mere determining, a description, implying at the same time a foretelling or predicting of natural events which (as we saw) is done by constructing in our mind analogous models. The agreement between our model and reality proves only that the scheme on which the model has been constructed is correct; it does not prove that the model does any dictating. The model dictates as little to reality as a barometer dictates what air-pressure there is to be in the atmosphere.

THE FORMAL AND THE SENSORY.

While we must object to Kant's doctrine that everything ideal is subjective and that what is directly derived from the mind cannot be objective, we must not (with the Sensualists) place the formal and the sensual on the same level. Kant is right that space

and time are not objects or things or entities; they are forms, and as forms they possess the quality of being empty. There is no particularity about them anywhere. Thus, space is space anywhere; it is not like matter, denser here and looser there; nor like energy, here intense, there weak. Considered in itself, space is the mere potentiality of existence. It is a description of the condition of granting motion to move in all directions. Its very indifference and absence of anything particular implies uniformity; and thus the laws of potentiality (i. e., the qualities of possible forms) are mere schedules; they are empty in themselves, but possess universal application.[1]

The formal aspect of reality is its suchness; the material element is its thisness. All suchness can be formulated in general, and even in universal, descriptions; all thisness is individual and particular. Statements of a general nature, such as are formulated by employing the methods of formal thought, are not single and concrete facts, but omnipresent and eternal laws; they are true or untrue, correct or incorrect. Facts of thisness are always in a special time and in a special spot in space. They are definite *nunc* and *hic*, not a *semper* and *ubique*. They are not true or untrue, but real or unreal.

The essential feature of things is their form; for their form, which is their suchness, viz., their external shape as well as internal structure, constitutes their character, their soul, their spiritual significance, making them what they are. Their thisness is their concrete presence which actualises the thing as a stubborn fact of the material universe.

It is true that the sense-pictures in which the world is represented to us are subjective; they are appearances or phenomena; it is further true that these pictures are radically different from the things which they represent. The color-sensation red has no similarity (as Kant rightly observes) to the physical qualities of ver-

[1] These truths have been felt by philosophers of all nations, and it is surprising to find them in the writings of Lao-Tze and the Buddhist scriptures, in both of which the absence of materiality, the not-being, plays an important part and is endowed with religious sanctity.

million; and physicists have sufficiently penetrated into the constitution of matter of any kind (though most of the problems remain still unsolved) to convince us that matter as it is in itself is radically different from the subjective picture as which it presents itself to the senses. But the scientist assumes form to be objective, and all the theories as to the constitution of matter, in chemistry as well as in the several branches of physics, are based on the principle of eliminating the subjective element, that is to say, the properly sensory ingredients of our experience, by reducing them to statements in purely formal terms, which is done by measuring, by counting, by weighing, by defining their proportions, by describing their shape and structure, by determining their relations; and if we have succeeded in doing so, we claim to have understood the objective nature of things. How can Kant's statement be upheld, that the sensation red is not an objective quality of vermillion? Is it not because physics has taught us that difference of color depends upon a difference of wave-length in ether vibration? Kant's argument is based upon a tacit but indispensable recognition of the objectivity of form and formal qualities.

Therefore, while granting that the sense-begotten world-picture of our intuition is subjective appearance we claim in contrast to Kant that its formal elements represent a feature that inheres in existence as the form of existence.

In making form purely subjective, Kant changes—notwithstanding his protestations—all ideas, all thoughts, all science, into purely subjective conceits. He is more of an idealist than Berkeley. Science can be regarded as an objective method of cognition only if the laws of form are objective features of reality.

THE MORAL ASPECT.

An incidental remark on the moral aspect of the contrast between the purely formal and the sensory would not seem out of place here. Man has risen from the sensual plane into the abstract realms of reason, and morality becomes possible only by man's ability to make general principles the basis of his actions. Thus it happens that at a certain period of man's development the sensory

is regarded as the lower, and generalisations with what they imply, ideals, maxims, abstract thought, as the higher. The sensory is thus discriminated against and even denounced as the enemy of the spiritual. Hence the dualistic phase in the religious and philosophical evolution of mankind in which sensuality is branded as sin and salvation sought in asceticism, i. e., the mortification of the body.

We must consider, however, that the contrast between form and matter, general law and particular existence, the ideal and sensory, spirit and matter, does not imply a contradictory antithesis, let alone any hostility or exclusivity of the two. That the spiritual, viz., the conception of the purely formal with reason and its generalisations, develops only on a higher plane, cannot be used to incriminate the sensory and the bodily. On the contrary, the spiritual justifies the sensory and points out the higher aims which it can attain.

And how indispensable is the sensory in religion! Consider but love, so much insisted on by the preachers of almost all higher faiths. Is it not even in its present form a sentiment, i. e., a sensory emotion? The truth is that morality consists in the sanctification of the sensory, not in its eradication; and sanctification means setting aside and devoting to a special purpose, to the exclusion of a general use. Particularity is the nature of bodily existence and particularity demands exclusiveness. Any general use of bodily functions will prostitute them. Reason, on the contrary, is meant for general use and can never suffer from a general application.

Kant's conception of morality is based upon reason, to the exclusion of sentiment. Reason makes action according to principles or maxims possible, and all those maxims are moral which can become universally established. Thus the basis of ethics is the golden rule, pronounced by Confucius, Christ, and other religious leaders of mankind. Lao-Tze says of the sage: "His methods invite requital."[1]

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[1] *Tao-Teh-King*, Chapter 30.

FORM BOTH SUBJECTIVE AND OBJECTIVE.

We believe we have satisfactorily explained the problem of the *a priori*, of the purely formal, which puzzled Kant; we have further shown how and why the laws of purely formal thought agree with the highest laws of nature; why being devoid of particularity they are universal (implying necessity); and there remains only to be pointed out that the validity of science rests upon the assurance of the identity of the subjective and the objective laws of form. Form, being common to both domains, the objectivity of things and the subjectivity of the mind, serves as a bridge on which cognition can advance into the unknown realms of objective existence, and thus the formal sciences constitute our organ of cognition, the objective reliability of which depends upon form's being an objective feature of things.

It goes without saying that all that Kant says concerning their infinity, uniqueness, universality, and necessity as being against the belief that space and time are objects or things holds good; it proves that they are forms. Yet though they must not be regarded as objects, they are objective; they are the forms of intuition but also of the objects intuited. Further, what Kant says (relying on symmetry as intuitively perceived) to prove that they are forms of intuitions and not concepts, holds as well to prove that they are sighted forms of existence, not internally hidden qualities of a stuffy, thingish nature to be distilled from sense-perception in the alembic of the observation before its existence can be known. It is true that the world as it appears to us is a sense-woven, subjective picture; things as we perceive them are phenomena. Further, our concepts, including the world-conception of science, which is built up with the help of the purely formal laws of thought, is a mental construction; they are noumena. Both worlds, that of sense and that of thought, are subjective; but they represent reality; the senses picture the world in the beauteous glow of sensations, and the mind describes it in the exact measures of formal determinations; but the latter, if true, offers an objectively valid model of the

constitution of things, explaining their suchness without, however, giving any information as to the nature of reality in itself, i. e., what matter is in itself; whether it is eternal or not; why it exists; and if it came into being, or how it happened to originate. It is obvious that things are not matter, but matter of a definite form; the form is cognisable, while matter is simply the indication of their concrete reality as objects in the objective world.

SUBJECTIVE CONSTRUCTIONS OF OBJECTIVE VALIDITY.

Kant in discriminating between empirical perception (viz., the sense-impressions possessing only subjective validity) and experience (viz., the product of sense-impressions worked out by the *a priori* methods of pure reason imparting to our judgments universality and necessity)[1] goes far in refuting himself and his pet theory. He speaks of universality and necessity as the only means by which the subjective elements can become objectively valid. He claims, e. g., to "have amply shown that they (the concepts of the pure understanding, causality, including also mathematics, etc.) and the theorems derived from them are firmly established *a priori*, or before all experience, and *have their undoubted objective value*, though only with regard to experience."

If the concepts of the pure understanding have objective value, why are they not objective? Why must they be regarded as purely subjective? We grant the strength of Kant's argument that, being unequivocally creations of the mind independent of sense-experience, or, as Kant calls them, *a priori*, they are subjective. But is not the question legitimate that they may be at once subjective and objective? Kant disposes of this question too quickly, and here lies his mistake: instead of investigating how certain uniformities of law may be at once indigenously subjective, i. e., originated by purely mental operations, and at the same time objective, i. e., actualised by the operations of material bodies in the concrete world of real existence, he jumps at the conclusion that all things ideal are necessarily purely subjective. The ideal, viz., all that belongs

[1] *Prolegomena*, § 2 ff.

to the realm of ideas, is subjective, but it has objective validity, and that which gives it objective validity is the mind's power of forming universal and necessary judgments. In fact, the terms universal and necessary would have no sense if they were limited to the realm of subjectivity and if objective validity did not imply true objectivity. Hence our aim is to explain the correspondence between the subjective and the objective, and we come to the conclusion that the *a priori* judgments are based upon the conditions of pure form, and form is a quality of the object as well as of the subject.

Thus while Kant's doctrine implies that

> the forms of intuition (space and time) and the formal laws are *a priori* in the mind; therefore they are purely subjective and the intuiting and thinking subject transfers them upon the objective world;

our position is the reverse.

What Kant calls *a priori* is purely formal; therefore the mind can produce its laws and theorems by purely mental operations, yet at the same time, being purely formal, they apply to objective reality as the formal conditions of all objects, and thus the operations of objects, as far as their formal conditions are concerned, bear a close analogy to the *a priori* theorems.

We construct the purely formal in our mind, but we do not create it. Nor are the propositions of mathematics a quality of space. We do not deduce the Pythagorean theorem from space, but we construct a right-angled triangle and investigate the results of our construction. Accordingly the theorems thus evolved are products of our mental operations executed on conditions given in our space conception. There are no mathematical theorems in the stellar universe, but there are conditions in the starry heavens which make it possible to calculate distances or other relations with the help of arithmetical computations and geometric constructions. And the conditions which make this possible can only be the objectivity of form implying that the *a priori* laws of subjective form as constructed in our mental models possess an objective validity.

THE OBJECTIVE ANALOGUES OF MENTAL CONSTRUCTIONS.

Zeno's paradox and the difficulties which Clifford found in the continuity conception of space, it seems to me, arise from a direct identification of the mental construction of space with the objective formal features of things that constitute what may be called objective space. Objective space is an inherent quality of things as the relational of their parts and is not, as in subjective space, a construction. The path of a body can be represented by a mathematical line, and a line is infinitely divisible; but for that reason it is not composed of infinite parts. Nor has a moving body to construct a line of an infinite number of infinitely minute parts by adding them piecemeal. The mental analysis and construction of a line is different from traversing it. For moving over a definite stretch of ground it is not necessary to go through the process of separately adding the imaginary infinitely small parts of which it is supposed to consist and into which it may be divided. It has not actually been divided, it is only infinitely divisible.

It is true that time (as time) is purely subjective, but there is a reality that corresponds to time. Time is the measure of motion. We count the running sand of the hour-glass, we divide the face of the sun-dial, we build a clock to determine the lapse of time. There is no time (as time) in the objective world, but there are motions, such as the revolutions of the earth round its axis, or round the sun, and these motions possess succession with definite duration, rendering time, viz., their determination, possible. Duration with succession of events in the world of things is the objective equivalent of time. The measurement of time is a subjective device.

The same is true of space as a conception of the extended world of things. There is no space conception in things, but bodies are extended; and their relation among themselves is an arrangement of innumerable juxtapositions. Extension, juxtaposition, direction of motion, is the objective quality of things that corresponds to the purely mental concept of space.

The untrained and philosophically crude man transfers subjec-

tive conceptions of things directly upon the objective world. He speaks of light and colors, of sounds, of time and numbers and things as existing outside of his mind; but a close inspection of the origin of mind will teach us to discriminate between sound and air waves, between colors and the cause of colors (produced by a commotion in the ether,—a reality whose existence is directly imperceptible and can only be deduced indirectly by argument). We shall learn by reflexion that geometrical lines are purely mental constructions, but that the paths of the stars possess qualities (viz., all those which depend upon purely formal conditions) that closely correspond to the conic sections of mathematics.

Further, it becomes obvious that our division of the world into separate things is artificial, for things are only clusters of predicates which impress us as being units. The truth is that the world is so constituted as to render a perfect separation impossible. Things are in a perpetual flux, and the limits between them are arbitrary. As the whole atmosphere and its pressure belong to our lungs, so the gravity of the sun is an integral part of the weight of the earth. Thus we can truly say that there are no separate things except in our minds where they are artificial divisions invented for the practical purpose of describing the world, of mapping out its parts, of comprehending its actions and having a means of adjusting ourselves to our surroundings.

Logic is purely mental, but there is something in the objective world that tallies with logic; we call it natural law, but the term law is misleading. There are no laws in nature, but only uniformities resulting from the condition that the purely formal is the same everywhere and that the same formal conditions will produce the same formal effects.

Purely formal laws are universally valid only as purely formal laws. Twice two will be four in all arithmetical systems of any possible rational being, and the statement is universally valid so far as pure forms are concerned. If we deal with actualities possessed of additional qualities where multiplication ceases to have its strict mathematical sense, the statement will no longer be tenable. The accumulation of power on a definite occasion may have

results that cannot be calculated by addition or multiplication. The associated wealth of twice two millions may far exceed four millions; and twice one half will never be one when we deal with iving organisms. All this is conceded. Ideal operations are purely mental and as such subjective, but for all that they possess objective validity which implies that there are objective features exhibiting close analogies, by being products of a fundamental sameness of conditions. This fundamental sameness is the universality of form which is common to both the domain of the objective world and the ideal realm of the mind, the thinking subject.

There are neither categories nor classes in the objective world, but the different modes of existence are classified by sentient beings and the scheme of the classification is the result. A reflexion upon our modes of thought objectifies them as modes of existence. The Platonic ideas, i. e., the eternal types of the various beings, do not possess a concrete existence as do, e. g., the moulds of a potter, but there are uniformities among the living forms which are obviously apparent. The doctrine of evolution proves that the lines of division between the types of beings are not so distinct in reality as they seem to be, and before a strictly scientific inspection they fade away as imaginary; yet they remain and are indispensable for our method of classification; and the unities which they represent justify us in speaking of objective features as corresponding to the mental conception of Platonic ideas.

THE ORIGIN OF GENERALISATIONS.

The sense-impressions of things are registered according to their difference of form. Every sense-impression runs along in the groove prepared for it by a former sense-impression. Thus the same is registered with the same, and similar ones are correlated. The result is a systematisation of sensory impressions, and the relations that obtain in this system which is built up in the natural course of growth, may appropriately be compared to the pigeon-holes of a methodically arranged cabinet. The difference between the cabinet with pigeon-holes and the human mind is this, that the former is artificial, the latter natural. The human mind with its

rationality has been developed according to mechanical law and the classification of sense-impressions is done by it as automatically as the distribution of the different letters in a type-distributing machine.

Our ideas, our names of things, our system of classification, are purely subjective, but there is an objective analogue of the eternal types, which consists in the uniformities of all possible formations. This is true of living creatures as well as of machines and other concepts of human fancy. In the domain of invention we know very well that the inventor sometimes creates a combination of parts never actualised before on earth; but the inventor is a finder: he is as much a discoverer as Columbus who found a new continent, or the scientist who succeeds in formulating an unknown law. America existed before Columbus, the law of gravitation held good before Newton, and the idea of a steam engine was a realisable combination before James Watts. It is a feature of objective existence that certain functions can be performed in perfectly definite interrelations. Such conditions which are actualised by a certain combination and disappear as soon as the combination is destroyed, are the objective features in things which justify the subjective idea of unities finding expression in concepts of things and beings.

THE IDEAS OF PURE REASON.

Kant grants the objective applicability of the categories, but he denies the validity of the ideas of pure reason, especially the cosmological, the psychological, and the theological idea. We are unable to follow Kant and are inclined to consider his three ideas of Pure Reason in the same light as time and space and the categories. The concept of unity is not a mere assumption but it has its correspondent analogue in reality[1] and has its practical use; only we must beware of treating unities as concrete objectivities, as separate and discrete entities, as things in themselves which have an objective existence apart from and independently of their

[1] Thus not only all organisms are unities, but also steam-engines, dynamos, or any machinery that would not work unless it were constructed of interacting parts in a definite way.

constituent parts. Thus the soul of man is as real on the assumption of an ego entity as on the theory of its denial. Life is as true whether or not vitalism can be established. The world is a great interrelated system, whether or not the uniformities of nature are called laws. There is a creation of the world, a formation of its life, a dispensation of its destinies, taking place, whether or not this ultimate norm of being be called God; the facts of the cosmic order remain the same on the assumptions of both theism and atheism. But obviously, this decision is not an endorsement of Kant's antinomies, but an explanation of his reasons for formulating them.

While we grant that there is a reality corresponding to Kant's three ideas of pure reason, we do not mean to say that there is a God such as the crude belief of an untrained mind represents him to be, nor further that there is a soul such as it is assumed to exist in the annals of superstition, nor finally that the crude notions of a cosmos, the limits of the world or its infinitude, its composition, its determinedness, and its absolute existence, should be such as abstract reason might arbitrarily construct: we only mean to say that there are factors in life which caused man to construct such mental images or ideas as are called God, soul, and world. The ideas may be wrong, but the factors which produced them are real, and the duty devolves upon theology, psychology, and cosmology to eliminate error and bring out the truth.

My objection to Kant's doctrine is not an objection to his terminology nor to idealism in general. We may form our world-view in an idealistic as well as a realistic nomenclature. Object may mean either the sense-woven picture or the outside thing which it signifies. We may say that the objective world is ideal, for such it is, meaning by objects the things as we see them. We may say that the objective world is real, meaning by objects the actual things represented in our sense-images. The nomenclature of a philosophical system is important but it is arbitrary. We may criticise it as impractical, but we cannot on its account reject a philosophy as untrue.

REALISM OR IDEALISM.

We object to Kant's doctrine of limiting form to the subject and thus denying the objective value of the ideal. We may define terms as we please, but we must remain consistent. If the objects are ideal, I gladly grant that the forms of the objects are ideal; but for all that, being forms of the objects, they are objective, as much as the objects themselves.

The sense-woven pictures of things, though subjective images, are the realities of life, and our concepts of things are symbols of them in terms of their formal features expressed according to schedules which we construct *a priori*. Time and space, the forms of our sense-world (of our *Anschauung*), accordingly are as real as these things, and I cannot say that the things themselves are real while the forms of things are purely ideal, i. e., not real.

Schopenhauer, a one-sided but nevertheless one of the most prominent and faithful disciples of Kant, defends Kantian idealism against the misinterpretations of the so-called realists in these sentences:

"In spite of all that one may say, nothing is so persistently and ever anew misunderstood as *Idealism*, because it is interpreted as meaning that one denies the *empirical* reality of the external world. Upon this rests the perpetual return to the appeal to common sense, which appears in many forms and guises; for example, as an 'irresistible conviction' in the Scotch school, or as Jacobi's *faith* in the reality of the external world. The external world by no means presents itself, as Jacobi declares, upon credit, and is accepted by us upon trust and faith. It presents itself as that which it is, and performs directly what it promises."[1]

THE SUBJECT AS ITS OWN OBJECT.

The quarrel between the idealists so called and the realists of Jacobi's stamp is purely a question of terminology. It is a vicious circle to ask whether the real is real; the question is, "What do we understand by real?" Now we agree with Kant in accepting *Anschauung* as real. Our perceptions are the data of experience,

[1] From Schopenhauer's *The World as Will and Idea.*

they are the facts of life about which there is no quibbling and the question of unreality originates only in the realm of abstract thought, viz., in the domain of interpretation. Perceptions are classified; perceptions of the same kind are subsumed under the general conception of their class and if a perception is misinterpreted, our notion concerning it is erroneous. An after-image is as real as the original perception, but it is called an illusion when it suggests the presence of an object; in other words when its cause is misinterpreted.

Perceptions accordingly are what we define as real, and space and time are, abstractly stated, the forms of perception. Time and space, accordingly, are as real as perceptions.

Now we may ask what are the objects of the perceptions, defining objects this time not as the sense-woven images of our perception inside our senses, but as the external presences which are supposed to cause them. Since it is impossible here to enter into a detailed epistemological discussion of the subject, we state the answer for brevity's sake dogmatically as follows: The objects (viz., the external presences which are supposed to cause perceptions) are, ultimately, i. e., in their inmost constitution, of the same nature as are the perceptions themselves. The perceptions in their totality are called the subject—which is a sentient body, an intricate organism consisting of different organs of sense and a superadded organ of thought for preserving the sense-images, collating them, classifying them, and interpreting them. We are a system of perceptions and impulses, guided by memories and thoughts, but we represent ourselves in our own perception as a body in time and space. Thus our representation of ourselves is our self-perception, i. e., a representation of the subject as its own object, and our self-perception is as real as are perceptions in general. Succession of sense-impressions and reactions thereupon, accordingly, form part and parcel of our subject as its own object; and in the same way, juxtaposition of organs is an attribute of our self, not as it is as a subject in itself, but of our self as it represents itself as its own object. Other objects are in the same predicament and partake of the same nature. If time and space are the forms of

objectified subject, viz., of our own bodily existence, we have good reasons to ascribe objectivity to the facts from which the ideas of time and space are derived, viz., to extension and succession.

THE OBJECTIVE ORIGIN OF SPACE AND TIME.

It is true that the factors which generate in the mind our conceptions of time and space, together with the entire formal aspect of being, lie in the subject, in the sentient thinking being, but they lie not in the abstract subject in itself, not in the subjectivity of the subject, not in the quality of the subject which remains when all other qualities, i. e., the objective features of its own actualisation as a concrete being, are omitted by the process of abstraction, i. e., when they have been cancelled in thought. The subject in itself will be found to be an empty generalisation which contains nothing but a product of our analysis of perception, the bare idea of the perceiving in contrast to the perceived. It contains nothing either *a priori* or *a posteriori;* merely itself, the shadow of a thing. But the actual subject, which is an object in the objective world, exists somewhere in space and in a given time. It moves, i. e., it changes its position. It consists of juxtaposed organs and its experiences exhibit a definite succession, each act having its own definite duration. Therefore we do not hesitate, when drawing a line of demarcation between the subjective and the objective features of the thinking subject, to include its form together with its bodily objectivation in the realm of objectivity. In this way it happens that time and space may be called subjective, because the objectified subject finds them *a priori* in itself, but their ultimate root lies in the domain of objectivity, and we can therefore just as well call them objective, because they are the forms of the objective world and originate in the subject only because it is an object belonging to the objective world.

UNIVERSALITY DUE TO SYSTEMATISATION.

Kant was puzzled mainly by the subjective apriority of the laws of time and space and of all other formal relations, but this puzzling apriority is, closely considered, nothing but their general

applicability to all possible experience, which is due to the fact that all formal relations admit of systematisation. Formal possibilities can be exhausted and purely formal statements apply to *all* pure forms. Hence they possess universality, and universality admits of no exception, hence it implies necessity, which involves *a priori* applicability.

It is true (as Kant says) that purely formal knowledge is empty; but we know at the same time that the purely formal knowledge gives system to the empirical, to the sense-given facts of our experience. If we could not classify sense-impressions, they would remain a useless chaos, and human reason would not have developed. Kant expresses this truth by saying that the sensory impressions without the guidance of the purely formal are blind.

But as the formative norms of the objective world shape things and make them such as they are, our formal cognition classifies sense-impression according to their forms and thus makes a knowledge of objects possible. Our formal cognition is not the cause of the objective uniformities (as Kant suggests) but one of their applications only, being, as it were, their own reflexion in the consciousness of a sentient being. By being systematised in the shape of formulas, they apply *a priori* to experience and become in this way a key, with the help of which we can unlock the closed doors of the mysteries of nature and decipher the riddles of the universe.

THE REAL AND THE SUPERREAL.

We may call the eternal norms of existence which condition the formation of things "being" or "*Sein*" and the concrete actualisation of the types of being their "becoming," *Werden* or *Dasein*. We become acquainted with the norms of existence, part of which are formulated as natural laws, by abstraction and generalisation, but for that reason they are not mere glittering generalities, abstract nonentities, or unreal inventions, but significant features of objective existence, depicting not accidental but necessary uniformities. While we concede that the world of becoming is real, we must grant that the realm of being is superreal. Both *Sein* and *Werden*, Being and Becoming, are real; but the reality of the two

is different in kind. The latter's reality is actualisation, the reality of the former is eternality. Thus the former is immutable, the latter a perpetual flux. The fleeting realities of sense are definite objects in the objective world, but the norms of eternal being are the formative factors which shape them.

Obviously the eternal norms of existence, which are identical with the purely formal laws constituting the cosmic order, though not material facts, are the most effective presences of the world. They are not only real, they are superreal. They remain the same whether realised or not in the actual world. They produce the cosmic order, render the rise of rational beings possible, they are the condition of the intelligibility of things, they are the prototype of mind and spirituality, they are the corner-stone of both science and ethics and constitute Kant's *mundus intelligibilis*—the realm of spiritual being; Swedenborg's sphere of spirits, of angels, and archangels; the kingdom of God, to be realised on earth; yea, God himself, for God is all these norms in their totality and systematic unity. In Lao-Tze's philosophy it is the eternal Tao, the world-reason or primordial Logos. In Buddhist metaphysics it corresponds to Açvaghosha's Tathâgatagarbha, i. e., the womb of Buddhahood and the origin of all things; to Amitâbha, the source of all light and wisdom, and also to the deathless, the uncreate, the non-corporeal existence (*arûpa*), the Nirvâna of the older Buddhists.

NOUMENA.

The data of experience are sensations, or sense-perceptions, which represent themselves as images of things in time and space. The sensory element of the images, which is conditioned by the material composition of the sentient subject, is purely subjective and need not be uniform. Thus we know that colors are perceived differently by different eyes; the color-blind see the world like a steel-engraving, or rather a wash-picture, gray in gray. To the red-blind red appears green, to the green-blind red appears dark yellow and green pale yellow. If all men were color-blind, the gray image would have to be regarded as normal. The forms of

things, too, are conditioned to some extent by the material composition of our sense-organs, as much so as the picture on the sensitive plate of a photographer's camera depends upon the lens. Further, we see not things as they are, but as they are projected according to the laws of perspective. But we can from the given data of the projected images and additional considerations of other data of experience reconstruct the form and structure of things as they are in space and of the events as they and their accelerations take place in time. This construction of things is called in Kant's terminology things as creations of thought, or noumena, and the noumena are intended as models of the objects themselves, for they mean to depict things in their objective nature, as they are after the elimination of all subjective elements of cognition. Accordingly noumena (as noumena) are scientific notions, products of reasoning, and subjective in a higher degree even than sense-perceptions. They are the interpretations of the sense-perceptions and are as such ideal, i. e., representations not things. But they represent things as they are, independent of the senses of the sentient subject. Noumena would be unmeaning, if they did not represent objective realities, if they were purely fictitious, if they did not portray the things as objects in the objective world. We may fitly call the realities for whose designation noumena (i. e., scientific concepts) have been invented objects, or more definitely, objects in themselves.

They constitute the realm of experience, and time and space are the generalised modes of their existence by which we determine their formal qualities. Nothing is real in the sense of concrete existence, except it be in time and space. Accordingly time and space (though not objects but mere forms) are objective qualities of things, and without time and space concrete things cease to be concretely real and become either mere ideas or nonentities.

We may with Kant distinguish between thing and thing in itself and may understand by the latter the eternal foundation of the thing, its metaphysical *raison d'être*, whatever that may mean (either its Platonic idea, its eternal type, or the Schopenhauerian conception of its "will to be," or the general and abstract idea of

its existence), but under all conditions space and time belong (as Kant says) to the things as appearances, viz., the things as objects in the objective world which implies (the contrary to that which Kant says) that they are not purely subjective, but objective.

THE OBJECTIVITY OF SPACE AND TIME.

Now we may call the perpetual flux of concrete objects "appearance," and the domain of eternal being "the real things": in that case the real things come to appearance by becoming actual in time and space. In this sense we agree with Kant, that time and space are real for our experience, though not for our experience alone, but for any experience. Every sentient subject, in so far as it is sentient, every individual man, is not a subject pure and simple, but an actualised subject, an objectified thing, for all acts of cognition are acts of an objective significance, taking place in the domain of objective existence, as an interrelation between two or several objects. One party to this interrelation (viz., my bodily organisation) happens to be the sentient and thinking subject, but that alters nothing in the case, for all its actions take place in time, and the concrete corporeality of its organs is somewhere in space. Again therefore we come to the conclusion that space and time appertain (as Kant says) to the appearances of things. They appertain to the subject, not in itself, but to the appearance of the subject, viz., to its objectivation; accordingly they are (as opposed to what Kant says) objective, not purely subjective, and may be called subjective only in a special sense, viz., in so far as they appertain to the objectified subject, which, however, is an object like any other object in the objective world. The subject does not transfer time and space into the objective world, but anything that becomes actual thereby makes its appearance in time and space. In other words, Time, Space, and all the norms of purely formal relations, are the forms of any possible concrete existence. Whatever the metaphysical *raison d'être* of things may be, the "why there is anything," reality, when actualised, represents itself objectively as being in time and space. The thinking subject does not represent things in time and space, but in so far as it is an actual object

in the objective world, it represents itself (i. e., it appears) in time and space. So do all other things: hence the concurrence of the formal notions of the objectified subject with the formal conditions of the objectified things of our surroundings. Kant says (§ 52*c*):

> "Space and time together with the appearances in them are nothing existing in themselves and outside of my representations but are themselves only modes of representation."[1]

He should have said (and here we use purposely Kant's own term "appearance"[2]):

> Time and space are modes of appearance, viz., of self-representation.

Being modes of appearance they are inside every subject in so far as it has made its appearance in the objective world. They are in all objects as those relational features which determine the juxtaposition of things. It is the actualised appearance that needs extension (i. e., space) for the distribution of the several organs of the thinking subject. We feel our limbs as being in different places, as moving about, as touching, as separating, etc., and these feelings are parts of our soul: they are the inside of the subject which is objectified (or comes to appearance) in our bodily existence. Our body (viz., our self as appearance) is extended, and the space needed for it is limited by the skin. The remainder of extension

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[1] It is very strange that the same Kant who says that space (viz., extension) is only a mode of representation declares (in § 2) that the sentence "bodies are extended" is analytical; accordingly he regards extension or space as the essential feature of a thing, of an object. Why then does he not recognise space as the mark of objectivism, which might have led him to concede the objective nature of the operations of the thinking subject?

[2] Appearance or phenomenon means originally the picture of objects as it appears on the retina and generally all the data of sense-perception; but the word is used in contrast to noumenon, or abstract thought, denoting the concrete object as it is given to the senses distinguished from its general abstract idea. Thus, the world of appearances means the concrete world of objects that affect our senses, though the term might be interpreted to stand for the retinal picture as a mere subjective image in contrast to the material world of objective reality. Indeed, there are authors who do use the word in the latter sense, while in the minds of most readers the two conceptions are mixed and the former is imperceptibly affected by the latter. It would not be difficult to point out what an interminable confusion the use of this word has produced in philosophy.

which accommodates the other objects of the surrounding world is designated as the outside; and if the extension within our skin is real, the outside must also be real. Both together constitute space.

When Kant denies that space and time are objective, he becomes confused and self-contradictory. For he would either have to say that space and time are limited within the boundary of the body of the thinking subject, which is nonsense, or he must attribute them to the subject as a thing in itself, which contradicts his own theory according to which time and space do not refer to things in themselves, but to appearances only. Thus even from Kant's own premises and when employing his own terminology the theory becomes untenable that space and time are purely subjective attributes. Their very nature is objectivity, and if objects are appearances, time and space as the forms of all appearance must be regarded as features of existence which in their very nature are objective.

It appears that Kant was not sufficiently careful to distinguish between space-conception, which is subjective, and space itself, which, being the juxtaposition of things and their parts, is objective. Space-conception originates from within sentient organisms, viz., in the mind, by its adjustment to the surrounding world through the use of its organs. Its ultimate sources are of a physiological nature consisting in the motion of the limbs and especially the eyes. This is what Ernst Mach calls physiological space.[1] Mathematical space is a higher abstraction than physiological space. In mathematical space all incidental features, the differences of right and left, of high and low, etc., are dropped, and space is regarded as homaloidal, viz., as constituted alike throughout. The homaloidality of space is the simplest way of depriving space of all positive attributes, of rendering it the "same" throughout. At any rate it is a mental construction as much as the idea of a straight line and all geometrical figures. The construction has been made without any concrete building material, with mere mental operations, simply by

[1] See Ernst Mach's article "On Physiological, as Distinguished from Geometrical, Space," in *The Monist*, Vol. XI., No. 3, April, 1901.

proceeding on the assumption of logical consistency, where the same procedure yields the same result. That other space constructions are possible need not concern us here. At any rate, our space-conception is built up in the thinking subject by operations of which it is possessed in its capacity as an object moving about in the objective world. Our space-conception is a noumenon (a product of thought), and like all noumena, it is intended to describe features of objective reality; and these features of objective reality intended to be delineated in our space-conception is objective space—viz., the extension of the world and of its parts, the juxtaposition of bodies, and the range of directions all around every moving point.

Our space-conception is subjective, but for that reason space itself remains as objective as any object in space. Moreover, the data from which our space-conception has been constructed are as objective as are all the acts and facts of our bodily organism.

THINGS IN THEMSELVES.

Where, then, are the things in themselves, which, according to Kant, remain unintelligible?

There is a truth in the idea that our mind is so constituted as to transfer to the phenomenal world its *a priori* notions of time and space and its thought-forms. The world of our senses which appears to us as the objective world that surrounds us, is truly a construction of our organs of sense; the construction is as necessary as is for example the reflexion of a picture in a mirror; things in themselves remain outside. In this sense Kant's doctrine of idealism is undeniably true.

But Kant goes further in saying that things in themselves, meaning things viewed independently of our sense-perception, do not partake of form and are therefore unknowable. But what is knowledge if not a correct description of things? Things are mirrored in our eyes, and abstract notions are formed to represent them in mental symbols. It would be absurd to expect that things should bodily migrate into our heads.

It is the ideal of science to eliminate the subjectivity of the

thinking subject and construct a world-picture in terms of formal laws, by the guidance of the several sciences of formal thought; this is the noumenal world, the world of thought; but this noumenal world is nothing but a picture (more or less accurate) of the objective world as things are independently of sense-perception. Here everything changes into motion of a definite form; the rainbow with the warm beauty of its colors becomes the reflexion of ether waves of a definite angle with definite wave-lengths. Though the noumenon is a subjective construction, it is an analogue of the objects as they are in themselves, describing their suchness. Accordingly, this would be a cognition of things in themselves, for Kant defines things in themselves as the ground which determines our sensibility to have sense-perceptions, or briefly the causes of phenomena.

Cognition is nothing more nor less than the construction of analogous symbols of things by which we can know their nature for the sake of determining their action, thus enabling us to direct the course of events by adaptation partly of ourselves to conditions, partly of our surroundings to our wants. Unless we denounce science as a vagary of the human mind, we must grant that in spite of the shortcomings of the individual scientist, the ideal of science (which consists in describing things in their objective existence) is justified, and can be more and more realised.

And what becomes of things in themselves?

If things in themselves cannot be described with the assistance of formal thoughts, they degenerate into dim chimerical and contradictory notions, such as unextended bodies, or substances without qualities, or unmaterial entities, or causes which remain outside the pale of causation.

The conception of things in themselves is a vagary of pre-Kantian metaphysics, the empty shell of which, as an irrational quantity, transcendent and unknowable, was by some mishap suffered to remain in Kant's philosophy.

If things in themselves mean objective things, viz., things as they are, independently of our sensibility, we must deny that they are unknowable. If they mean that which constitutes the essential

character of the things, making them what they are, they will be seen to be determined by their suchness; they are what Plato called the eternal types of being, or ideas; and we ought to call them not "things in themselves," but "forms in themselves."

Schopenhauer interprets the Kantian conception of things in themselves as the metaphysical *raison d'être* of their existence, but he denies that its nature cannot be known and discovers its manifestation in "the Will." According to him it is the Will that makes every one what he is, and Schopenhauer's Will is not the physiological process of willing, the conscious effort of causing an idea to pass into an act, but the tendency to motion such as it inheres in all existence, in the stone as gravity, in chemicals as affinity, in sentient beings as desire. He expressly excludes that feature which distinguishes will from unconscious motions, viz., intelligence, and speaks of the blind Will. The blind Will is practically deified by him, for it is supposed to be above time and space and credited with creative omnipotence. In reality it is nothing but the widest generalisation of motion.

Clifford offers another interpretation of the term "thing in itself," viz., the sentiency of organised beings, constituting their subjectivity and corresponding to what in man is called his "soul." But, again, this subjectivity, the spiritual inside, is always the sentient accompaniment of the organisation, the bodily outside; and its nature can be determined by studying the visible exponents of its objective expression in which it is realised. Thus Clifford's things in themselves are as little unknowable as Schopenhauer's.

Agnosticism, the egg-shell of metaphysicism, prevented Kant from taking the last step suggested by his doctrine of the necessity and universality of the laws of pure form. He lost himself in contradictions and became satisfied with his statement of the antinomies of pure reason, according to which we may prove with equal plausibility that God exists or that he does not.

THE GOD-PROBLEM.

If Kant had followed the course which we here, under the guidance of the principles laid out by him, have briefly sketched

out, his philosophy not only would have become less artificial and remained in close touch with the natural sciences, but it would also have helped theology to develop purer, truer, and nobler religious ideals. With the egg-shell of agnosticism on its back, Kantism was satisfied with the existing state of beliefs and things; not that Kant endorsed the various irrationalities of the Christianity of his day, the literalism of dogma, the implicit belief in the very text of the Bible, the Creation story, paternalism of the Prussian State Church, etc.; he criticised them occasionally in mild terms; but instead of going to work to purify religion (not in the narrow and prosaic spirit of his disciples, the Rationalists, but with due reverence for the poetry of dogma and legend, and at the same time with a consideration for the practical needs of the heart): he simply justified them in general terms on account of their moral usefulness in his *Critique of Practical Reason.*

As an instance, let us point out his unsatisfactory solution of the God problem.

Kant accepted in his conception of God the traditional views of the Church, and discussed it as one of the several metaphysical notions, the result being that the idea is pronounced to be transcendent, and we can with equally plausible reasons both affirm and deny his existence. It is one of Kant's four antinomies of Pure Reason. But God unknown to pure reason and not discoverable in the domain of experience and resuscitated only as a postulate of practical reason, is a poor substitute even for the mythological conception of the god of the uneducated masses. An hypothetical god cannot help; he is sicklied over with the pale cast of thought; he is not real; he is paralysed. I am far from blaming Kant, who has done so much for philosophy, for not having done more and performed a reformer's work for religion; but I would suggest that he might as well from his own principles have investigated the nature of formal laws, which in the subjective sphere of reason appear as transcendental ideas, and have come to the conclusion that a truer God-conception could be derived therefrom, which then would commend itself as the higher ideal. The popular notions of the several religions and also of a primitive theology are dim fore-

shadowings of a scientific God-conception, the purity of which is increasing with the progress of scientific truth.

The world-order, that purely formal law in the objective world which forms and creates, shaping the stellar universe (as Kant set forth so forcibly in his *General Natural History and Theory of the Heavens*), and revealing itself in the social development of man as the power that makes for righteousness, must have made its influence felt in the life of mankind at the very beginning, and would naturally, according to the practical needs of the intelligence of the successive ages, assume the shape of a conception of God, more or less crude in the beginning, and more or less philosophical in the mind of the wise. The world-order, this superpersonal spirituality that acts as the divine dispensation in the world, is hyperphysical (I purposely avoid the much-abused term "supernatural," but I might as well say supernatural). It is intrinsically necessary, it is omnipresent, it is unerring in the truth of its various applications which form as it were a grand system, comparable to the articulated differentiation of a spiritual organism,—a personality; it is as unfailingly just as the law of causation is rigid; and every God-conception is but an attempt at comprehending its moral significance.

The fetishist's notion of a power to which he must conform is not absolutely wrong. It contains a truth, but is alloyed with superstitions. The idea of thinking of God as a king of kings, as a supreme judge, is more advanced, inasmuch as God henceforth represents a moral maxim, the principle of justice in the world. The God-father idea of Christianity surpasses the theology of the prophets of the Old Testament, but it, too, falls short of the truth in all its perfection. All we have to do is to be serious in scientifically thinking the divine attributes of omnipresence, of eternality, of infinitude, of omniscience, of all-justice, of the irrefragability of law in the physical, the psychical, and the social spheres of existence, which, reflected in the instructive growth of his conscience, become to man the moral norm of life, and the ultimate authority of conduct.

Kant cited the religious notions of the theology of his age be-

fore the tribunal of pure reason and dismissed the suit as offering no issue, leaving the question in the state in which he had found it. He would have served his age better had he worked out the philosophical significance of the idea of God, on the basis of the practical significance of his Transcendentalism; he would then, instead of leaving the problem unsolved, have boldly propounded the gospel of the superpersonal God as coming, not to destroy the old theology, but to fulfil its yearnings and hopes, without in the least doing violence to the demands of criticism and scientific exactness.

EDITOR.

PSYCHOLOGY AND HISTORY.[1]

NO study has had a more rapid development in recent years, or is now engaging more attention, than psychology. Its principles, laws, and methods are all discussed with more or less competency. A few of the moral sciences have attempted and in part succeeded in renewing themselves upon a psychological basis. Even philosophic systems which once were built mainly on ontological conceptions, are now constrained to take a large part in the consideration of the processes of consciousness, which are more and more considered as the necessary point of departure in the discussion of all philosophic problems. Now, given the generally recognised importance which psychological investigations have in our day acquired, it may not be useless to examine the results at which they have arrived, not so much with respect to psychology itself as with regard to knowledge in general. For the measure of value which a science possesses is found in the last analysis not only in its contribution to a precise knowledge of the facts, but also in the degree in which it influences our general conception of the facts themselves.

The first thing to be considered in a science, that without which it can never arrive at definite and ordered results, that indeed which distinguishes science from empiricism, is its method of investigation. The scientific renaissance of the sixteenth and seventeenth centuries was largely the product of a new critical tendency of thought which took the form of a new and more rational method.

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[1] Translated from the manuscript of G. Villa by I. W. Howerth, Ph. D., of the University of Chicago.

The historical method in its turn revived the interest in the historical and philological sciences, previously encumbered by rhetorical and pragmatical preconceptions which prevented them from fulfilling their highest function, that is, the gaining of a scientific and objective knowledge of the facts. I need only mention the recent progress of economics, thanks to the application of rigorous methods. Now, is psychology able to boast of the progress in its methods, and hence of the wealth and precision of results which the other moral sciences have reached? It is not a bold affirmation to say that it has not.

The causes of the uncertainty of method in which psychology is yet entangled, and hence of its slow progress in comparison with that of many of the historical, philological, and social sciences, are very complex, and I have examined them elsewhere somewhat more minutely than I am able to do here.[1] But however various and complex these causes may be, they may all be reduced to a single fundamental one, and that is the vastness of the field which psychology attempts to cover. While sociology, psychology, political economy, philology, and law, study only special phases of the manifestations of the human intellect, feeling and will, psychology embraces the entire domain of these phenomena and strives to reduce them all to general principles. Moreover, it has not only to roam over this vast field whose limits are so extraordinarily extended in time and space, but it must also proceed beyond the confines of human activity, and trace step by step the formation and development of the processes of knowledge in the lower animals, which processes are naturally related to those of man. In the history of man himself psychology must follow the progressive evolution of his mental activity in such a way that out of all these comparative studies may issue some general principle which may serve to explain how the consciousness of civilised man has been developed. Not only must psychology study the psychic aspect of organic beings, but it must also investigate the relations which exist between the processes of knowledge and corporeal phenomena. It

[1] See my volume *La psicologia contemporanea*. Turin, Fratelli Bocca, 1899,

must investigate the structure and function of those organs which stand in direct relation to these processes, and penetrate into the most burning and profound questions of the fundamental science of all vital phenomena, that is, biology. Hence psychology touches upon every side the principles upon which both the moral and the natural sciences are founded. From this complexity of its relations arises its variety of method, and the difficulty of making its methods converge toward a single end.

The most ancient method that we find in the history of psychology is the so-called method of introspection as it was for a long time practised. This method, although it led some philosophers to a profound insight into human knowledge, was almost always bound up with philosophic speculation upon which the examination of psychic facts was made directly to depend. The insufficiency of this method, shown so clearly by modern psychologists, is too evident to need demonstration. Pure introspection leads inevitably to an illusion, and if it happens to produce something useful it is only the fruit of a casual and happy intuition, and not the result of a scientific procedure. Its results are the product of art, not of science. To remedy the defects and the errors of this introspective method, so dear to the ancient spiritualistic philosophers, psychology and all modern positive philosophy are trying to follow the same path upon which the biological sciences have entered, and which has already led them to such great success. That is to say, psychology is attempting to apply physiological experimentation to the processes of knowledge. It is thus that the young science expects to open for itself a new era! Materialistic philosophy seems to be delivered over to these researches and cries aloud that no other form of psychology except physiological psychology is possible; and that final explanation of psychic facts is to be found only in cerebral phenomena, which, according to that philosophy, represent the real basis of what appears to us under the aspect of conscious phenomena. Although this opinion is now somewhat shaken, both on account of the declining progress of materialistic philosophy, and also by the clearest demonstrations of the greatest representatives of physiological psychology, who have repeated

over and over that the final end of experimental psychology is the knowledge of psychic processes, and that it has nothing in common with physiology except the use of certain means of experimentation, it may still be said that the materialistic interpretation of the new methods of psychology is rooted in many minds, especially among students of the natural sciences and of medicine. The exertions of certain psychologists and philosophers, however, have not prevented the new experimental science from following the proper tendency and methods. It has begun to distinguish its own ends from those of physiology, and has thus rapidly increased its appropriate researches in almost the whole domain of the elementary psychic processes, and has engaged the attention, especially in some countries, of a numerous class of students. But unfortunately, while the minute work of analysis has led in some sciences, as for example in the philological sciences, to important results which have radically reformed the general conceptions and principles upon which they are founded, in experimental psychology nothing similar has yet taken place, nor seems likely to take place for some time to come. The facts and laws established upon even a relatively firm foundation are yet very few. Many of them are yet the subject of lively discussion and cannot be reduced to any general and constant principle. While there is a relative agreement among experimental psychologists in respect to certain methods of research, there is a great divergence of opinion among them concerning the aims and limits of their science. Some believe, and with reason, that the desire to extend experimentation down to the elementary psychic processes cannot lead to any positive result, and does not correspond to the true aim which psychology should set up. Others, still holding to the old materialistic ideas which under the name of psycho-physical materialism strive to hold their place in experimental psychology, attempt to subject the whole vast field of psychic processes of the individual to the experimental, even the physiological, method. The effect of these discussions makes itself felt in psychology. The diversity of psychological opinion and principles is sometimes a cause and sometimes a consequence of these different and even opposed tendencies in

method. It will be sufficient to recall in this connexion the example of certain experimental psychologists who attempt to reduce the processes of feeling and will to muscular sensation, attempts which are strongly combated by other experimenters.

Positive and evolutionary philosophy, moreover, upholds against the old spiritualistic psychology, and perhaps more firmly, another method of external observation, that is, the social, which consists in the study of the collective productions of the human consciousness as they are manifested in history and in social institutions. This branch of psychology, growing out of the various social sciences, philological and natural, like ethnography, sociology, the history of religions and of language, and anthropology, has taken the name of social psychology. But if the limits of experimental psychology are indefinite, those of this other psychological method are still more so. As the founders of this new science came from the ranks of workers in the special sciences and philosophy, the new science is influenced by the methods pursued in these special studies. Thus it is that social psychology may approach the philosophy of history, or linguistics, or sociology, or anthropology, or ethnography. The positive philosophers are inclined to make it a kind of sociology. With some of them, indeed, sociology and social psychology are identical. On the other hand, the philosophers who approach it with spiritualistic theories, wish to assimilate it to the philosophy of history, which in its turn has been reduced by the positive philosophers to sociology. The philologists seek to found social psychology upon the science of language, the anthropologists upon ethnography, etc. While some years have passed since Lazarus and Steinthal, in 1855, began the publication of studies in ethnographical psychology in their celebrated periodical, it cannot be said that great progress has been made in the delimitation of the new science. Even to-day the confusion in this domain is very great, and every new treatise on the subject advances new criteria and new principles.

In addition to these two principal methods, scientific psychology has evolved others which are to some extent related to them. These may be found in the so-called child psychology, animal psy-

chology, and pathological psychology. It is indisputable that every one of these psychological methods has produced valuable results. It cannot be said, however, that they so well accord with the two principal psychological methods as to bringing forth the results which might be hoped for. The majority of the students of child psychology and animal psychology proceed empirically, caring little about following the procedure of experimental and social psychology.[1] Hence it is not a rare thing to find some of these psychologists who have the naïve conviction that they are presenting new and important ideas, and who do not seem to be aware that their theories are long since antiquated and displaced by others corresponding better to the facts. As to the cultivators of pathological psychology, they are for the most part, with splendid exceptions, psychiatrists who have passed over from the study of physiology and histology without any special preparation for the study of mental processes.

From all this it may be seen that we are yet far from a union of the various psychological methods, from which union alone may issue a new, solid and organic science. To all these uncertainties and discordances in method might be added the confusion of thought which has brought forth some philosophical doctrines which have arisen from time to time, and even in our day in which general philosophy is held in so little consideration. On account of the very great importance of psychology it is to contemporary philosophers a special object of criticism and discussion. Not all of these philosophers are careful to study the methods and results of scientific psychology, but for the most part discuss the matter with purely subjective criteria. Such discussions and criticisms serve only to delay the progress of the young science.

Reference to all these unfavorable conditions of modern psychology ought not to lead to the conclusion that no hope may be cherished in regard to a unity of method. That would be a hasty and erroneous conclusion. The clear presentation of the difficulties

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[1] A splendid exception, so far as child psychology is concerned, is presented in J. Mark Baldwin's *Mental Development in the Child and the Race.*

which psychology has yet to overcome before arriving at its true scope, ought to be a means of reaching a large and just comprehension of its nature, and therefore of its methods. Now what is the final scope towards which these various methods ought to converge? And why is it thought necessary to write about it and to discuss it so much?

The answer to these questions must be sought in the fact that we intuitively feel more or less clearly that psychology must be something more than the experimental and minute examination of the elementary processes of knowledge, of sensation, of representation, of simple feeling, and of the acts of reason. It must be the study of the mind considered in all its manifestations, not only in the individual, but also in history.[1] It is felt, in short, that the importance of the new science lies in the fact that it is fundamental to all those disciplines which are called moral.

It is well known that the historical, philological, juridical, economical, and social sciences have had such a remarkable development in the last century that it constitutes one of the most salient features of our age. The so-called moral studies have risen to the rank of sciences. They have been forced more and more to rival in exactness the physical and natural sciences, and they have already arrived at results which may be considered as definite acquisitions of knowledge. The historical method has put these sciences in the way of the exact researches which has led to the establishment in the domain of history, civil, artistic, literary, religious, juridical, economic, and social, of a great number of new data and facts. It has led us to change radically our conceptions in regard to the origin of social institutions, and artistic and literary manifestations; and in fine to free all these studies from philosophic and moral preconceptions, endeavoring with some success to consider them with the same objectivity with which naturalists are now studying natural phenomena. But the historical method, while immensely beneficial to the moral sciences, has always been held

[1] This is pointed out by George Trumbell Ladd in an article in the *Psychological Review* for March 1899 on "Certain Hindrances to the Progress of Psychology in America."

to a general rather than an empirical procedure, caring little about investigating all the manifestations of the human mind, the reciprocal relations of which that method had clearly put into relief. It should be able to lead us to some general principle, to some fundamental law which might give us the key to the explanation of all these phenomena. The historical method, in short, has given more attention to the description and exposition of the facts than to their explanation. It has been held more to a descriptive and narrational procedure than to an explanatory. The recent advances in the methods of psychology, some of which, as for instance social psychology, are found in more direct contact with the historical and social sciences—have in fact arisen from them—should naturally lead us to a result which may explain all the manifestations of the collective consciousness, which are studied in the moral sciences by means of certain general principles which ought to be common to all peoples and to all ages, and which ought, moreover, to be found both in the individual and in the species. This co-ordination of all the moral sciences under general and common principles is an indispensable need of human thought, which always tries to unify and simplify the complexity of facts which it finds before it. Hence it is natural that the moral sciences, after having worked for many years to examine, ascertain, and establish facts, should now give attention to a very important question for the theory of knowledge, namely, the question in regard to the relations existing between the fundamental principles of each of them and the fundamental principles common to them all.

There is no doubt that if we could arrive at a solution of this problem, and arrange all the sciences of the mind in a logical and rational system, they would receive a new and a great impetus, and would finally arrive at what has always been their highest aim, namely, the explanation of the facts which they have established. The physical and biological sciences have already passed through their crisis, and now present a marvellous unity which rests solidly upon the basis of the general principles of dynamics. Such a basis for the moral sciences may be found in psychology. Already there has arisen in the moral sciences, especially in the juridical and so-

cial, a reaction against the somewhat empirical method of the historical school, and the works of Jhering, Wagner, Tarde, Simmel, Giddings, and others seek to found law, political economy, and sociology upon the principles of psychology. This tendency finds authoritative expression in profound philosophical works in which there is drawn up a complete classification of the sciences, and which contain a criticism of all their methods. Such works are the *Logics* of Wundt and of Sigwart. This doctrine ought to be accepted by philosophers and psychologists, for it gives a reason to hope that the contemporary movement in the moral sciences, especially in some countries where scientific thought is very active, as in learned Germany and in the young United States, is following a very decided psychological tendency, even in those moral sciences which, like political economy, show themselves least inclined to it.

The so-called historical school had clearly seen the fact, of extraordinary importance in general knowledge, that historical events, social and religious institutions, language and all the artistic and literary productions of a people are not created by the work of a few isolated individuals, but are the results of the long laborious work of many generations, upon which work the genius puts the final stamp. All manifestations of the collective consciousness of a people are therefore historical facts, and so history becomes the typical science to which all the other moral sciences should conform. All historical events must therefore be conceived as results of a complexity of precedent and concomitant circumstances, and hence the real importance of the individual factor is much diminished. Civil history itself, which seems to be more the result of individual action and hence less easy than other forms of history to be scientifically explained, presents itself under a new aspect, and the explanation of historical events is now sought, not in the psychological motives of the most conspicuous personages, but in the general ethnic, political, social, and religious conditions of the age in which the events took place. Now that the historical method is supplemented by the psychological, we may hope that history may one day become a new science, and that it may arrive at a true explanation of the facts which it studies.

It sometimes happens, however, in the domain of thought that things take an unforseen direction, and that which appears as undisputed truth to-day may to-morrow be put aside and in its place we may find other opinions which were thought to have been dead forever, and which are now restored under a new form to the honor and rank of incontestable truth. While a few years ago the sociological conception of history was admitted by almost all historians and philosophers, it has now begun to be doubted, and they are seeking to find the limits of scientific explanation in history and to ascertain what part artistic intuition plays in it. More and more discussions and treatises show signs of the change which is going on in the conception of the historical figures which have emerged from innumerable crowds of obscure and secondary men. It appears that humanity feels once more the necessity of admiring the "hero," and of restoring the legendary aureole which the critic had stripped from him, and is turning to the belief that to him alone is due all sudden changes in circumstances and in institutions. This is illustrated by the revival of the Napoleonic legend, and by the interest taken in the doings of great men. Against the exaggeration of the sociological method now employed in positive philosophy, and which allows too little importance in history to the individual factor, has now arisen an individualistic tendency which divides even the sociologists themselves. Some among them, like Gabriel Tarde, maintain resolutely the importance of the individual genius in the origin of social institutions.[1] Others, like Ludwig Gumplowicz, accurately distinguish history from sociology. Only the latter, according to this author, can aspire to the rank of a science. History, he thinks, is condemned to remain forever a form of art, and cannot therefore have any other scope beyond that of procuring æsthetic pleasure.[2] Thus arises once more the famous

[1] See among the numerous works of this author his paper entitled "La Sociologie" in *Etudes de psychologie sociale*, 1898.

[2] See Gumplowicz, *Sociologie und Politik*, 1892. Ratzenhofer (*Die sociologische Erkenntniss*, Leipsic, 1898) also maintains that it is impossible for history ever to become a true science. P. Barth is of the same opinion. See his "Fragen der Geschichtswissenschaft," in the October number of *Vierteljahrsschrift für wissenschaftliche Philosophie*.

theory of Schopenhauer, according to which history can never become a science for the reason that the facts which it discusses cannot be subordinated to any general laws.

All these tendencies which are manifested in the special sciences, historical and sociological, have, as might be expected, a sensible echo in philosophy. For some years there has been an attempt upon the part of some philosophers to build up a general system of the sciences on the basis of new criteria, and an objection to the distribution of knowledge into the two great sections of natural or physical, and moral, which appears now to be almost generally accepted. The most original feature of these attempts is the conception of history which they manifest. The problem of history, therefore, transcends the limits of a special question of methodology and becomes a problem of great importance to all knowledge. Some of these attempts merit a serious examination.

The first to announce clearly the idea just referred to was, I believe, a German philosopher well known by his important works on the history of philosophy, Wilhelm Windelband. It was presented in an academic discourse delivered by him as Rector of the University of Strassburg, in 1894. This brief but highly interesting discourse was entitled *History and the Natural Sciences.*[1] Windelband develops very clearly the idea that the natural sciences may subordinate their facts to general conceptions, that is, to constant laws, and hence they may be called *Gesetzwissenschaften*, or sciences of phenomena subject to laws. There are other sciences, he maintained, which do not seek for general laws, but only to establish a succession, or historical series, of facts. The first might be called "nomoletic" sciences, the second "idiographic," or the sciences dealing merely with events (*Ereigniswissenschaften*); or as another philosopher, Rickert, who has developed the same idea, calls them, "the sciences of pure reality." But this is not merely a change of names, for these two groups do not correspond to those represented by the physical and moral sciences. For in the first group these philosophers put some of the disciplines usually com-

[1] W. Windelband, *Geschichte und Naturwissenschaft*, Strassburg, 1894.

prehended by the moral sciences, as for instance psychology; and in the second, some of those belonging to the group of natural sciences, that is, those which have not yet succeeded in explaining their facts by means of constant laws, and which must not be considered as having established a series of phenomena. These ideas have been more amply developed by the philosopher who has just been named, Rickert, Professor in the University of Freiburg, Germany, in a very important work (of which he has issued only the first volume), entitled *Limits in the Formation of the Concepts Appropriate to the Natural Sciences*, and in a discourse published a few months ago on *The History of Civilisation and Natural Science*.[1] This author, who among other merits has that, which is not very common among German philosophers, of expressing himself with great clearness, maintains that this new division of the sciences is the only possible mode of combating successfully the naturalistic conceptions of history; for, by comparing these two conceptions, that of natural science and history, every possibility of confusion is eliminated. We have, therefore, two great groups of sciences, comprehended under two concepts which are employed in a more general signification than that which is commonly attached to them. Under the concept of "natural science" are comprehended all those sciences which may be reduced to laws, or to general abstract principles. The concept of "history" embraces all the sciences which are limited to the establishment of a succession of facts, whether natural or moral. Psychology would thus be comprehended in the first group; geology and meteorology in the second. The former science, according to these philosophers, is in the way of establishing laws having an equal value with those of the natural sciences. The latter, however, must be counted, for the present at least, as ascertaining and presenting facts, and nothing more.

In the present connexion it is especially important for us to examine the part which is assigned in this new system to psychol-

[1] Heinrich Rickert, *Die Grenzen der naturwissenschaftlichen Begriffsbildung*, Erste Hälfte, Freiburg i. B. und Leipzig, 1896. *Kulturwissenschaft und Naturwissenschaft. Ein Vortrag. Ib.* 1899.

ogy. That it should be included among the natural sciences has been maintained, as we have said, by the materialistic philosophers, from the pure materialists of the middle of the last century to those who have arisen from the school of experimental psychology, that is, the so-called psycho-physical materialists. The most authoritative representative of this school, Hugo Münsterberg, in a recent development of an idea already expressed by him in numerous works, maintains that it is absolutely necessary to distinguish psychology from history, because the first studies only the individual and must proceed by means of physiological experimentations, certain of reaching in this manner laws as secure as those of physics; while the second is a science only in name, that is, it is a mere accumulation of empirical cognitions.[1] The new psycho-physical materialism is found, according to its leading representative, in accord with the ideas of the two philosophers whom I have mentioned above, except that these two do not wish to deny to history the title of science, as did Schopenhauer, but make of it a science *sui generis*, a branch of knowledge which is content, as Leibnitz said, with *verités de fait*, not being able to aspire to the *verités éternelles*. On the one hand, then, we have psychology, which is considered only under the aspect of individual psychology, while on the other we have all the historical sciences, and first among them, civil history, at least the history of social and religious institutions and of artistic and literary productions, which Rickert calls the science of civilisation (*Kulturwissenschaft*). A philosopher and sociologist, Ludwig Stein, while recognising in history the specific character of being a succession of facts which are never repeated, makes an exception in the case of the history of society, which, according to him, follows a certain rhythm which permits it to be reduced to general and constant principles.[2]

We see now the principles upon which the above division is

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[1] Hugo Münsterberg, "Psychology and History," *Psychological Review*, January, 1899.

[2] Ludwig Stein, "Wesen und Aufgabe der Sociologie," *Archiv für systematische Philosophie*, März, 1898.

based. Those who maintain it declare that the other division of the sciences into natural and moral is an artificial division which does not correspond perfectly to reality. They say, and not without reason, that natural phenomena are always so intimately connected with psychical that the sciences which study the latter must always recognise the methods which are used in the latter, if they wish to progress and to complete their researches. They must recognise that psychology is placed upon scientific ground only when it applies the methods of physiology; that political economy, sociology, linguistics, and the other moral sciences have continuous need for the data of the biological and physical sciences. In this respect we are in perfect agreement. All the divisions and classifications of the sciences into groups and sub-groups are more or less artificial, for the reason, that we must always keep in mind the fact, which is too often forgotten, that all facts, moral, sociological, historical, and biological, present themselves as a great unity in which all the parts are so intimately bound up that they cannot be separated except by the most patient work of analysis and abstraction. And yet all these classifications are necessary for the arrangement of the contents of our thought under some general principles, and are a most effective means of advancing the progress of knowledge. Now if this classification is rendered necessary by the needs of our thought and by the necessity of method, it must be based upon principles which are not purely formal, but which may be referred to the same essence as the phenomena which are included in the classification and disposed in a system. Now the fact that some sciences have arrived at a point where they can arrange their facts under constant laws, while others are not yet able to go beyond the mere discovery of facts, is not a sufficient difference to warrant us in declaring a fundamental diversity between the two kinds of knowledge. It represents a temporary condition in the history of thought more than a permanent characteristic. The final aspiration of scientific thought is to subordinate all kinds of knowledge to fixed concepts which may explain the phenomena of reality in its various forms. The stage of pure description and narration is a preparatory stage from which the physical and natural sciences

have passed before arriving at the stage of relative perfection which some have reached, and in which by means of experimentation they seek the causes of phenomena; that is, they seek not only to describe but also to explain. So the biological sciences have made the greatest progress only when, abandoning the pure descriptive and speculative method, they have devoted themselves to investigating the origin of the transformation of the different parts of the organism. So meteorology, although still not in so advanced a stage as physics, is nevertheless seeking (and there is no doubt that it will succeed) to reduce all its phenomena to the general laws of physics and to demonstrate these phenomena by means of such laws; and so it has been forced to transform itself from a descriptive to an explanatory science. And the same may be said of mineralogy and other natural sciences, which are to-day endeavoring to establish themselves upon the general principles of physics and chemistry, and which in doing so have made rapid progress. The division of knowledge into the explanatory sciences and the sciences of pure fact has then a provisional value. In order to ascribe to it a permanent value it would be necessary to show that some sciences can never be explanatory. And this is what the philosophers above mentioned endeavor to do with respect to human history, which can never lead, according to them, to the general laws of psychology.

Between psychology and history these philosophers establish a profound difference. Psychology, they say, attempts to find the general laws of thought in all its forms, and is therefore an abstract science *par excellence* because it deals only with concepts. It must, therefore, be a natural science having, for example, the same character as physiology. History, on the other hand, has a quite different character, as it regards only the single, concrete, real, individual (*das Einmalige*) fact. It may be observed, however, that this idea of reducing the processes of knowledge to the same condition as those of physiology is quite an arbitrary one not justified by the results of scientific psychology. Physiological phenomena are reducible to the general laws of physical energy, while those of psychology are qualitative processes not transformable into quan-

titative equivalents. Physical phenomena, and hence also physiological, are reducible to a fixed substratum, purely conceptual, which is necessary to explain the constancy of energy. The processes of consciousness, however, can never be reduced to any such substratum. They are purely concrete in their nature. It is not correct to affirm, as does Rickert, that "in simple sensations psychology must find a concept which corresponds perfectly with that of energy in physics."[1] On the contrary, the attempts made by psychologists who follow the tendency of psycho-physical materialism, among whom is Rickert, to reduce all the facts of consciousness to sensations, are not confirmed by any serious proof and may be set down as a pure desire inspired by metaphysical preconceptions. All that constitutes spontaneous affective and volitional life can never be analysed into sensations.

We have, then, two absolutely different principles which govern psychic and physical facts. The processes of knowledge cannot be subjected to the same principles as natural phenomena, and this gives to all psychic processes that concrete individual character which has been sought only in historical facts. These latter are certainly more complicated than the elementary psychic processes. That is indisputable. But the same thing may be said of biological phenomena, which represent, in comparison with general physical phenomena, a higher degree of complexity, which confers upon each of them a detached individual character. The more complex the phenomena, the more they present the specific characteristics of individuality. And to explain them a knowledge of general laws must be aided by intuition. Just as one may know the general laws of physiology without possessing the intuition of the physician who rapidly diagnoses a case, so the theoretical psychologists may be incapable of explaining a single phenomenon. Here art necessarily comes to the aid of science. But this does not mean that all phenomena, whether physical or psychical, may not be scientifically explained. Historical events for instance, although the result of psychic processes which present a high degree of complexity, may

[1] Rickert, *Die Grenzen*, p. 198.

all be reduced to the general laws of consciousness. It is said by Rickert, Windelband, and others, that every historical event has an original and novel character, on account of which it cannot be reduced to any constant principle. And this is very true. A historical fact is never repeated in the same form in which it first presents itself. But that which is true of historical facts is true also of every psychic fact, even the most elementary. And it is precisely the most salient and specific character of the processes of consciousness that they are never renewed in the same form, but with every combination in which they are found a new form appears. This originality of the psychic processes is inherent in its very nature, which is for the most part subjective. Although the processes of knowledge are all directly or indirectly determined by external excitations, the one in which the psychic elements are combined depends largely upon the subjective state of the individual consciousness. So the series of psychic processes presents, from the simplest to the most complex, the same character, that is, the character of a concatenated series of facts, but not in the form of physical causality according to which antecedent facts necessarily produce the successive phenomena. In a series of human actions one may ascend from effects to causes, and the function of psychology is precisely that of explaining this concatenation, but it is not able with certainty and definiteness to deduce from the actual phenomena the future consequences. Among the few established results of modern psychology may be enumerated the very important one of having succeeded in establishing the law of the continuous creation of new processes in the individual and also in history.

The investigation, examination, and confirmation of facts is therefore the indispensable means to every historical reconstruction, but it is not the final end, which must consist in the explanation of the facts themselves. And this explanation can only consist in an application of the general principles of psychology, an application which naturally meets with more or less success according to the attitude of the historian with respect to perceiving by intuition the intimate nature of the phenomena. But the final ex-

planation lies always, as Sigwart has clearly shown,[1] in the laws of psychology, which do not possess, it is true, the rigor, and above all the power, of prevision which physical laws possess. Nevertheless they succeed in establishing certain typical forms which all psychic processes follow in their course. So history aspires to what every science aspires to, that is, to give an explanation of its facts. If history can never reach this end it must renounce the title of science, and must remain a complex of empirical cognitions, a form of art and nothing more. It can be a science only on condition of subordinating its own phenomena to general principles. A science of pure reality, of events solely, as Windelband, Rickert, and Stein define history, is a contradiction in terms.

This leads us to another important consideration. According to the theory which we have expounded, history, that is the complex evolution of phenomena, natural and human, must turn away from the attempt to find any law whatever, and confine itself to the modest limits of a pure empirical determination of the succession of facts. This succession takes place in a peculiar manner, bearing no resemblance to that in which the single individual fact is formed and developed. But this distinction is absolutely arbitrary, and contrary to the method followed in the progress of knowledge. The progress of the sciences consists, in fact, in unifying and simplifying the concepts which govern our cognitions, and in reducing complex phenomena more and more to elementary principles. So the great importance of experimentation, which has been applied to all the natural sciences and also to some of the moral, does not lie merely in the fact that it serves to explain the formation and development of elementary phenomena, but also and more in the analogy which may be logically established between these elementary phenomena and the more complex which have evolved through a long period of time. Thus it is that experiments in physics aid us, for example, in establishing an induction concerning the geological evolution of the globe, and experiments made in the ethnological laboratory throw light upon the evolution of organic beings.

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[1] See Sigwart, *Logik*, Vol. II., p. 587 et seq.

The particular is strictly related to the general. History is explained by means of individual phenomena; philogenesis by means of ontogenesis.[1] All the actual forces of science converge precisely towards this great end: to find common and simple laws which may explain the elementary processes as well as those which may be called historical.

Now if this is true of all the higher branches of knowledge there is no reason why it may not be true also with regard to psychology and history. What value could these minute and patient experimental observations which are going on in the numerous laboratories of psychology in Europe, America, and even in Asia, have, if we are not allowed to hope that some law or general principle may be found which will hold not only with respect to the individual consciousness but also in the psychological evolution of the species? The attempt made by some contemporary psychologists and sociologists to separate the individual from history and from society, as if these were abstract entities which are placed over and above the individual and from which he is to be detached as an absolutely distinct term, are wholly artificial and arbitrary.[2] But this exaggeration ought not to lead to the opposite conclusion, equally exaggerated, that society is only a sum of individuals. This theory, which has been justly defined as "social atomism," is as false as the other. While society is formed by individuals, i. e., social atoms, it should not be forgotten that the individual himself is a result of society. How and where are the moral and intellectual characters of the individual formed and developed if not in incessant relations with other individuals; relations which are the necessary result of the inner psychological nature of man, in which there is "the consciousness of kind" (to use the expression of a noteworthy American sociologist) which leads an individual to conform his sentiments and acts to his like, in accordance with that

[1] The psychological relation which exists between the individual and the species is well shown by Baldwin in his book on *Mental Development in the Child and in the Race.*

[2] One of these psychologists is Durkheim. See his *Règles de la méthode sociologique*, Paris, 1895.

law which a still more noteworthy French sociologist has called "imitation"?[1] The limits of this paper prevent me from developing further this idea, which is so splendidly illustrated in modern positive philosophy, and upon which many things might be said. But the intimate relation between the genesis of the individual and that of a species is so real and evident that we may infer from it the intimate connexion which exists between psychology and history.

Now if it is contended that psychology must be restored to the study of the individual consciousness, and that only by doing so can it become a true science, this connexion is lost. But if on the contrary the psychological evolution of the species is considered, not as an empirical succession of facts, which can never be a science, but as a progressive unfolding whose laws must coincide with those of the individual consciousness, then we may truly hope to arrive at a scientific explanation of historical events. Between the simplest psychic process which may be studied exactly and determined by means of experiment, and the complex historical phenomena which are naturally not subject to experimentation but are to be observed and examined with the same objectivity with which we may study natural phenomena,—I say between these two extreme limits there ought to be a perfect parallelism. The processes of historical and social evolution ought to present the same fundamental characteristics as those simpler ones which form the primary elements of the whole woof of psychic phenomena; just as the geological and meteorological phenomena are, with respect to the laws which govern them, identical with the more simple physical phenomena which may be reproduced in the laboratory.

The union of these two extreme terms, individual psychology and history, that is, the study of the most elementary and general form of phenomena and that of the most complex and concrete, must be brought about by that method of psychology which, as we have seen above, is still so variously and confusedly interpreted,

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[1] The intimate union of the individual and society is very clearly shown in J. Mark Baldwin's *Social and Ethical Interpretations in Mental Development.*

namely, the so-called social psychology. This branch of psychology is neither sociology nor the philosophy of history. For the former studies the development of social institutions in their concrete form, while the latter constructs the development of history and of society in relation to general philosophy and ethnic principles. Social psychology ought to be to history precisely what individual psychology is to the individual. It must study, in their most general and abstract forms, the development of ideas, feeling and volition in their long course of historical evolution. It therefore requires the data of the history of society, language and religion, even that of the arts, letters and sciences. But from all these data it must induce some general and constant principle which stands in intimate relation to the laws of individual psychology.

GUIDO VILLA.

LEGHORN, ITALY.

SUGGESTIONS FOR INCREASING ETHICAL STABILITY.

THE present paper is in no way concerned with any question of what is and what is not ethical conduct. Opinion on this point varies to some extent; but there is a broad region of common consent among all civilised peoples; and to this region of universally accepted duty our present inquiry will be confined. We all know that we ought not to endanger our own lives or other people's by carelessness; to commit suicide in a mere momentary fit of disgust with immediate circumstances; to kill our neighbor in petulant revenge for a trifling annoyance. We all know that we owe it to society to be cleanly, decent, sober, and at least moderately courteous, and to take pains with such occupations as we ourselves choose to pursue and wish to succeed in. On what does it depend whether we shall do these and other things which, at the start of life, we all intend to do? The mere wish to do them is obviously not sufficient, it is often momentarily suspended by fatigue or some slight nervous failure; or by mere absorption in some other interest; but in the meantime we have been forming habits (of sobriety, order, self-preservation, cleanliness, etc); and these habits bridge over the momentary lapse of volition. But it may happen to any of us to go through a period of nervous break-down in which the volition is suspended to a more serious extent and for a longer time. On what does it depend whether the good habit shall remain when the individual is, temporarily, not properly "responsible for his actions?"

To take a few concrete instances: Suppose two women equally well intentioned; both sober by taste and habit; both accustomed

to take a small quantity of wine with meals, and neither of them in the least inclined to exceed that small quantity. Suppose that both are attacked by some form of nerve depression, for which alcohol is an immediate palliative. On what does it depend that the woman in one case takes the palliative at random and thereby sets up a craving for stimulant which ultimately lands her in dipsomania; and in the other is not even seriously tempted to take alcohol out of her regular meal times? On what does it depend whether one whose power of deriving normal enjoyment from food is in abeyance shall become merely indifferent to food for the time, or shall start a habit of abnormal craving for unwholesome kinds of food? Whether one whose normal love of life is in abeyance shall become indifferent to his fate, or shall commit suicide during temporary insanity? Whether one whose normal enjoyment of family ties is temporarily disturbed shall merely become indifferent for the time to his own wife, or shall run away with someone else's wife; and tire of her in turn when the next phase of indifference comes on? In general terms, on what depends the question whether the structure of good habit shall remain during collapse of nerve power? If we could answer that question with regard to habits as to the value of which no dispute exists, each of us could apply the answer to finding out how to cultivate other virtues. Many factors go to the full determination of our question; some of those factors are probably not known as yet to anyone; others may be known to specialists but not to me. But one or two principles bearing on the subject seem to me to come out with perfect clearness, when the ordinary medical knowledge is analysed; and if these principles were emphasised and general attention called to them, that would not only do something in itself to diminish the quantity of ethical wreckage, but would also do something to facilitate the further investigation of points still doubtful.

The present analysis makes no claim to originality. The writer has no pretension to supersede or to criticise the work of medical and other psychologists, or even to show that she is acquainted with the last new up-to-date work bearing on her subject. The information here contained is either possessed by, or readily acces-

sible to, every adult accustomed to any kind of serious reading. But when a mass of heterogeneous material is algebraised, difficulties in the way of its practical application are sometimes got rid of. Various writers have contributed their quota of knowledge, each clothing his share in the language which his own life and habits have rendered familiar to him; unless the whole mass is translated into an algebraic (i. e.: neutral) notation, such elements as the accidental connotations of words, personal prejudices, and professional bias tend to create confusion; it is difficult to see clearly the essential principles in which the authorities really agree, and the points on which they still differ and about which therefore further investigation is especially desirable. Two moral diseases due to opposite causes are sometimes called by the same names; e. g.: Megalomania; a title applied by careless doctors indifferently to (1) an exaggerated idea of the value of some work which one really has done and undervaluing of all other work; and (2) such utter absorption in the work and personality of some central type that one's own identity and acts are forgotton. The declaration of Edward Maitland that "we sought in the records of the past for experiences and teachings corresponding to those which we ourselves had received from sources purely transcendental, the result of such research being to show indubitably that what we ourselves had thus received far surpassed in plenitude and purity all that before was in the world; and to qualify us to criticise, and to estimate the value of any such system that might be propounded" (*The Unknown World*, March, 1895), betrays a quite different kind of mental disease from that of the over-worked student, who says: "Tim Mahony? Who is he? I never heard of him. Oh yes! I think I did hear the name long ago; but I forget where. *My* name? Oh no! my name is 'Huxley' (or 'Jesus Christ' or 'Spinoza')." A medical practitioner of any insight and experience would, by instinct, treat the two cases differently; but the doctor, alas! gets hold of the case only after serious and probably irreparable mischief has been done; and as the *word* used by certain authorities in both cases is the same, relatives, who might do something to avert the mischief if they knew how, assume that precautions found,

or believed, to be useful in preventing the one disease will be equally efficacious against the other.

A still more mischievous confusion prevails in the use of the word "Habit." Practical efficiency of all kinds depends on the setting up of "habits," a "habit," in that sense, being a chain of impressions or acts so linked into a whole that one act of Will starts the whole series, which then carries itself on while the Will and attention are occupied with something else; as for instance: I will to write; and, that order being conveyed to my hand, it proceeds to write down, for the next hour or two, whatever words are in my conscious thought, without my attending to or feeling any choice about either the spelling of the words or the form of the letters. On this habit depends my *efficiency* as a writer.

But ethical quality depends on retaining the power *not* to form automatic habits of sequence in matters of importance, to keep each important element of life under the direct and immediate control of the Will.

The ethical quality of a life depends largely on the Will acquiring the "habit" of not allowing "fixed habits" to be formed except among those acts, ethically indifferent in themselves, which go to make up practical efficiency.

Now a large quantity of work has been done, by medical and other investigators, in the direction of finding out how fixed habits are formed. This work throws light, not only on the question what we should do with a view to promote efficiency; but also, by inverse application, on the question what we should avoid with a view to preserve the elasticity necessary for ethical quality; it is sadly evident that some educational reformers are applying the results of the investigation on the formation of habit, directly in both regions; they assume that one can form "habits" of reverence, justice, mercy, and kindness, by similar methods to those employed for forming "habits" of holding a pen without inking one's fingers and of wiping one's shoes at the hall door. Whereas the truth is that the qualities of reverence, justice, etc., depend essentially on the habit of *suspending action till there has been time for a mental act of conscious sympathy with facts*; while, on the other hand, such

habits as wiping one's shoes on the mat cannot be too automatic; they ought to be carried on without any interruption to conversation or meditation due to conscious attention to the outer act.

Then again, to come nearer to the special subject of this paper: While the ethical quality of *normal* life depends on keeping up the natural control of the Will over individual organs and faculties, and on not allowing this control to be interfered with by either automatic impulse or mechanical habit, this natural mode of telegraphic communication from the Will to any special organ may be suspended by nerve failure or disturbed by nerve disorder; either of these things may take place for a time or permanently. Ethical stability during nervous break-down must, therefore, depend on having at hand some extra-normal, or what one might almost call supra-natural, mode of communication from the Will to the special faculty. The Will must be able, so to speak, to send to any given faculty this message: "Communication from me to you is suspended for the present; therefore do nothing, but take a rest," or "Communication from me to you is disturbed; therefore pay no heed to any message purporting to come from me to you till you receive the countersign to the effect that normal communication has been restored." The Will must also be able to issue to any organ or faculty this final message: "Communication from me to you has been permanently destroyed; therefore go into Nirvâna and leave all available time and energy for the action of faculties still under my control."

The two functions of the Will, the normal and the extra-normal, are as distinct as those of the legislator who directs one how to act during life, and the Pope or Deity for the sake of whose supremacy one is willing to die. Yet it is evident that some teachers have confused the two things under one misleading title: "Habit of self-control." And they think that if they can succeed in bringing the action of a faculty in health under the control either of Will or of mechanical habit (they little care which) they have thereby done all that is necessary or possible towards ensuring absence of bad action, in the event of its normal mode of communication from the Will and of association with other faculties becoming deranged.

In fact, the whole subject of ethical training is in chaos owing to words being used in an ambiguous manner, and much confusion is cleared up when the material is first algebraised and then retranslated into the vernacular.

The notation used by me in the preliminary process of algebraising or neutralising psychological material is that invented by my husband, Professor George Boole, that being naturally the one with which I am most familiar. I have no reason, however, to doubt that other notations, such as that of De Morgan, may be equally good. The point on which I would lay stress is that what follows is not any theory or speculation of my own, (I hereby retract beforehand any portion of it which may prove to be so), but a retranslation into the vernacular of other people's statements, after these have been passed by me through the neutralising filter of Boole's notation.

As soon as we attempt to reduce psychological material to order by means of an algebraic notation, we perceive that confusion is often created by the fact that such material is usually dealt with according to some primary classification based on some preferential opinion or sentiment. States of mind are divided into good and bad; or into altruistic and selfish; or normal and abnormal; or natural and supernatural; or healthy and diseased; or waking and visionary; or earthly and transcendental; or, by those who consider themselves the spiritual-minded, as inner and outer; illumined and illusory; and so on. All such words expressing preference on one side or the other, besides leaving interspaces of debatable ground, commit the judgment at starting. It is always better to begin by making a primary classification about some simple matter not of opinion but of admitted fact. This is made much easier by the use of a neutral notation. As this reclassification of data is my present aim, I must here forestall a few criticisms on my method of procedure which would be quite valid if I were attempting, either to make an original investigation, or to enforce some opinion about nervous disease as against some other. If I were conducting an original investigation on the treatment of nervous disease, it would be a valid criticism on my results, to say:

"You are generalising from too few facts. The fact that you happen to have spent a few weeks on visits to a lunatic asylum, and nursed half a dozen cases of hysteria, does not give you a right to instruct the public on nervous disease." But I am here trying, not to show how nervous disease should be treated, but to clear away certain difficulties which hamper the general reader in his attempts to understand works on psychology. When one has nursed even one or two serious cases under an eminent nerve-specialist, and observed where he lays down positive orders, and where, and within what limits, he leaves the nurse free to experiment, one has gained something in the way of power to eliminate from the popular idea of the meaning of his printed works certain elements of error due to the words he uses being charged in the minds of readers with associations which cannot have been attached to those words in the mind of the writer. Perhaps it may be well to explain here one or two points on which much misconception prevails in connexion with the use of mathematico-logical notation to classify psychological material.

Whatever kind of data are being reduced by any strictly scientific notation, the *maximum* and *minimum* registers are corner-stones, or principal points of support, for the whole frame-work. For instance, when a mathematician is constructing a table of heat-averages, no one disputes his right to use, as an essential part of his material, the *maximum* and *minimum* temperatures of the period with which he is dealing. If I were trying to press the soundness of my opinion on any subject, as against someone else's, by reference to *authority*, I should have no right to quote as *authorities* any utterances except those of persons competent to judge. But, as I am only making a logical analysis of experience on my subject, extremes of opinion on both sides form the points of support of my algebraic filter. E. g.: A young school-master once said to me: "What we want is never to give the boys time to think." On the other hand, there are, or at least have been within the last half century, a few persons who mistook catalepsy for inspiration. I take these two (very foolish) opinions as extremes, beyond which opinion does not go; no school-master, however anxious to make

life external and active, desires to prevent his pupils from sleeping quietly for a few hours every night; no person in Modern Europe, however superstitious, goes so far as to desire delirium or epileptic fits for his child. I therefore take *approval of catalepsy* and *disapproval of any moment of day-dreaming*, as the two opposite "limiting conditions" of current opinion on the desirability of leaving a young soul "alone with the Lord."

Then again all mathematicians are familiar with the process of preparing the mind for the general solution of a Differential Equation, by working out first a partial solution. The process is somewhat like that by which we prepare a child for understanding a method in arithmetic by setting him to work out first an individual example in small numbers; we do not attempt to generalise from the particular *result* to a general formula; but we do generalise from the *method* of reasoning seen to be valid in a small and manageable instance, to, or rather *towards*, a method, analogous in structure but more complicated, which will enable us to deal successfully with difficulties of the same class on a larger scale. The difference between the two kinds of generalisation from a single individual instance: one fallacious and the other perfectly sound and legitimate; has been pointed out by my husband; I will here only indicate that such difference exists. I would beg the reader to remember that though the *answer* to any question about how many marbles a child possesses is irrelevant to the solution of problems involving vast national interests, yet the greatest statistician must have learned his method of computation originally by thinking out such questions as: "How many marbles, at four for a penny, can you buy for three pence?" Just so, having before me the task of organising data tending to throw light on the great problem: how to prevent negative failure of nerve-power from assuming forms positively bad, I framed a method of analysis by first thinking out a minor question (the one given in the Sequel as Example *b*); viz., how to prevent a certain peculiar form of lethargic tiredness from drifting towards conditions universally admitted to be bad (delirium, epilepsy, etc.) and induce it to take, instead, the desirable form of normal and recuperative sleep.

The material used in the following pages has been gathered from such easily procurable works as: *Life in Nature* and *Thoughts on Health*, by James Hinton; *The Unconscious Mind* and *Springs of Character*, by Alfred Schofield, M. D.; some works by Dr. H. Maudsley; Haeckel's treatise, *Monism, The Confession of Faith of a Man of Science;* sermons in Jewish pulpits and articles in various Jewish journals, in which the effect of hereditary and traditional monistic belief were incidentally touched upon; an address by Percy Furnival, F. R. C. S., on *Training*, in which he treats of the importance to morality of getting the whole muscular system under control of the Will; addresses to parents by Helen Webb, M. B., on "Neurotic Children" and on "The Formation of Habit"; a work by Russell Reynolds, M. D., on Epilepsy; a valuable fragment by Père Gratry on "Inspired Intellectual Capacity" (*Les Vertus Intellectuelles Inspirées*), which occurs at the end of his *Treatise on Logic*. Several of the above-mentioned writers have kindly given to me, *viva voce*, a little explanation of points in their work about which I asked; the same kindness would, I am sure, be shown to any serious inquirer.

There are four determining causes which seem to account for large numbers of cases of moral failure. First, parents usually seem to suppose that the ethical condition throughout life depends largely on the ethical quality of the motives brought to bear on the child during its earliest years: the reasons on which this opinion is founded seem to collapse at the first touch of logical analysis; they rest on premises true in themselves, but linked together by an unuttered fallacious assumption. The ethical quality of a life depends largely on habit. (True.) The *efficacy* of a life depends largely on *early* habit, because many useful habits are most easily and successfully formed before the age of ten, and there are some useful habits which, if not acquired before that age can hardly ever be formed later. (True.) It is therefore assumed that the *particular mental habits on which depends the ethical quality of a life* should be formed before ten. No writer with whom I am acquainted has attempted to bring forward any reason for jumping from the premises to the conclusion assumed. Nor do I know of any evidence

from other sources in favor of that conclusion. There exists, it seems to me, an overwhelming mass of evidence pointing to the opposite conclusion: i. e., that the properly ethical life should not begin to be crystallised into habits until after twelve. Till ten or twelve there is plenty to do in securing efficacy; in gaining the use of the faculties; in co-ordinating movement, gaining control of temper, learning to obey rule, to endure cheerfully small discomforts, to be accurate in statement, observant of outer facts, to keep apart in the mind the outer world of physical phenomena and the inner world of imaginative picture. It is highly important that a child should learn early to be able to do all these things and many others; but I see no reason to suppose that he will do them any better for forming the habit of attaching the doing of them to any special dominating motive.

(Good temper is not necessarily ethical.)

That there should be a dominating ethical motive in the mind of the adult who is directing the child,—a motive for the sake of which he desires to form good habits in the child—I quite believe; but I see no reason to suppose that anything is gained, for either the present or the future, by the child's being under the dominion of any one ruling motive, or by his motives partaking of any specially ethical quality. The attempt to work too early on ethical and altruistic motives tends to wear out their stamina. The ultimately dominating motive normally begins to gain hold at a time which varies between the ages of eleven and seventeen.

The second of the causes of moral failure to which I allude may be described as the custom among parents and teachers of building up good habits in the pupil on a basis of motive within which does not fall the true centre of gravity of the individual's moral being. As, for instance, when a young person who cares for nothing except making creatures (human and non-human) happy, is told that there is no value in mere kindness unless it is practised from some motive of abstract theology; with the practical result very often that she devotes herself, for the time being, to making happy the particular teacher who preaches that theology, instead of forming, as she would naturally do if left to herself, a general

habit of kind action. Or when one, the core of whose being is some ideal of Science or Art, is over-persuaded to believe, or rather to suppose she believes, that Science and Art are worthless, except in so far as they are pursued with conscious intention of benefiting humanity.

The third cause is a slow, subtle sapping of the moral foundations by what may metaphorically be described as a water-leakage; when some underground spring, pure in itself and necessary to life, may be draining itself away from the parts of the whole structure where it would be available for purposes of vitalisation, and be soddening and ruining portions which should, so to speak, have been carefully kept dry. As for instance when ideas are called into young minds, during the active hours of concrete study and eager competition, which should be as much as possible kept out of consciousness, except during pauses devoted to concentration and leisure. The fourth cause will be described later on; we will now go back to the second cause of moral failure.

Miss Webb divides neurotic children, that is to say, all children except the most stolid and commonplace, into two classes, which she calls "the naturally protected" and "the naturally unprotected." This classification is not, of course, meant to be taken as rigid and absolute; a nervous system may be more or less naturally protected. But for purposes of investigation Miss Webb deals with ultimate types.

Now suppose that a teacher is trying to build up a structure of good habits on a basis of motive within which does not fall what I have called the centre of gravity of the individual, then, other things being equal, the teacher will be successful in proportion as the pupil is unprotected; but in the same proportion will be the risk of the edifice collapsing, at some future time, in consequence of nervous failure or any shock or undue strain, or by the effort of the moral organisation to settle itself on its own centre of gravity. In proportion as the pupil is "naturally protected," the teacher will fail in his own aim of setting up good habits, but will set up instead a bad habit of self-protection, that is to say, a habit of resistance to influence, advice, and the wishes of others. This habit,

and such others, good or bad, as the pupil may form for himself, will be comparatively little likely to give way under shock or strain. Or, in other words, taking the cases in which the teacher has tried to form good habits on a basis of motive unsuited to the individual, it may be expected that *in proportion to his success in forming "good habits" in youth,* will be the number of cases of future dipsomania, suicide and general nerve-wreckage in later life which he will cause. Also, the greater his influence (i. e., the higher the pitch of protectedness which he is able to overcome), the more intense will be the resistance called out against him in those who do resist. In other words, the greater his average of success in forming good habits, the more dogged in revolt against future influence, good and bad, will be those whom he fails to influence. Therefore I much fear that whenever an educational scheme is based on any definite motive which is proposed to all the pupils as the one which should govern their lives, the greater its success in forming good habits, the higher will be the percentage of moral wreckage for which it will necessarily be responsible. And there is little use in endeavors on the part of those who are carrying it out to minimise the evil by improving their methods; for the evil is due, not to flaws in their method, but to the fact of its success.

Most Churches have arranged for some ritual (such as Confirmation, e. g.,) to be gone through at the critical period of adolescence, in order to give to religious teachers an opportunity for ethicalising life at the right moment. But alas! in this matter, more perhaps than in any other, it is true that "priests were appointed to lead men into Truth; but in all ages [and in all Churches] they have feared lest men should find the right road and walk in it." And the same may be said of a vast variety of non-religious teachers who undertake to steer the careers of young people, whether towards visible success or towards invisible Truth; whether towards worldliness or towards "other-worldliness"; whether in the interests of the individuals themselves or of Humanity at large. The majority of them, while sparing no pains to inculcate such habits both of thought and of action as they think desirable, omit to consider whether the basis of motive on which they are building the

habits is one within which falls the true centre of gravity of the individual with whom they are dealing. Let me not be misunderstood here; no teacher worth mentioning omits to observe what motives most powerfully sway his pupil at some given time; what I assert is that comparatively few find the true centre of gravity of the individual as a whole.

We have now to deal with the problem of finding the centre of gravity of an individual Will. All authorities agree that besides the conscious processes which go on in a human mind, some other processes go on outside of consciousness, which afterwards affect conscious thought. During some portions of a human being's time his discriminating mind is active; either receiving impressions from outside through the senses, or else consciously at work on material so received previously. We will call this state of conscious discrimination *phase A* and the action appropriate to it, *P* action. There is an inner mind, the action of which is described as "unconscious cerebration" or "subliminal consciousness." We will use the term "inner mind," not meaning to endorse any special theory about the local seat of it, or its nature or essence, but simply as a convenient designation. We will call its action *Q* action. During phase *A*, the outer mind is informing the inner, making there deposits of material which are thus being "lodged in memory."

During other portions of time the outer mind is passive; and is either dormant, or is passively receiving impressions from the inner. We will call these portions *phase B*.

There is a third possible alternative; the two kinds of action may conceivably go on simultaneously. It seems more probable however that the two actions go on not quite simultaneously but in very rapid alternation. We will call the state in which action from outer to inner and action from inner to outer go on, either simultaneously or in rapid alternation, *phase C*. The whole subject of phase *C* seems to be in chaos; and it would appear that little is really known about it. It is evident that some forms of it are irregular and unhealthy. Perhaps I may be allowed just to mention here that I have often been asked to help, out of school hours, children who "cannot understand," or "cannot get on with," arith-

metic, algebra, or geometry. The difficulty usually turns out to be due to the child's having drifted into a bad habit of setting up some anomalous forms of *C*; and disappears, without much explanation on my part, as soon as I can get the mind to set up a normal slow alternation of *A* and *B*.

It seems to me that the faculty of mathematical apprehension depends largely on the power to keep *A* and *B* distinct from each other, to alternate them at will; and to distinguish clearly which portion of the work belongs to each phase. I suspect that when great ethical teachers in all ages advise their followers in various forms of words to live "in the world and for it, but not to be of it"; what they mean might be algebraically stated thus:

Spend large portions of phase *A* in studying the facts of human life, and the feelings, needs and wishes of human beings, in order that your inner mind may be fed with material which it can convert, during phase *B*, into suggestions which will make your actions during succeeding *A* phases profitable to mankind; but resist the tendency of social custom to *drag you into phase C*.

All authorities worth mentioning desire (1) to make the alternation of *A* and *B* periodic, and (2) to place the alternation under control of the Will. That is to say, they wish to set up a tendency to pass from *A* to *B* and *B* to *A* at stated times; a tendency strong enough to prevent the occurrence of *automatic* or *impulsive* irregularity; but not so strong as to prevent either phase from being either prolonged or cut short by an act of Will.

It is obvious that the *direct* assistance which parents and teachers can give, by means of words, towards the forming of good habits must be given almost entirely during phase *A*. The teacher may rouse the pupil from *B* to *A* by a word; but as long as *B* lasts, advice from the outside is not reaching the consciousness. But the stability of the good habits which are being formed in *A* largely depends on preventing phase *B* from setting up counter-action to the good habits, and teachers may do something to avert such disturbance: (1) by promoting normal and peaceful modes of *B* and averting as far as possible the occurrence of less healthy modes of *B*; and (2) by adjusting the bases on which habits are being formed

in *A*, to the requirements of *B* in its normal modes. Teachers who do not know how to do either of these things, have recourse to too dangerous substitutes: some try to minimise phase *B*, "never giving the pupils time to think," in order that all the waking time may be spent "in books or work or healthful play," i. e., in various modes of *A* which the teacher knows how to direct. As it is impossible to make a brain go on living without some *B* action, over and above that of sleep, what such teachers practically do is to set up a habit of phase *C*. The whole proceeding is about as wise as it would be to try to keep an infant always either feeding or in violent exercise whenever he is awake, so as to leave no waking time for digestion, because the nurse cannot see the process of digestion going on, and therefore cannot direct it. What she should aim to do is to regulate the feeding and exercise so that the process of digestion shall go on aright of itself without her interference.

Other teachers try to direct phase *B* itself, when the voice does not penetrate consciousness, by some unspoken influence; by "suggestion" of special thoughts or thought-sequences: a mode of intrusion into the sacred arcana of life on which I have only one comment to make, viz.: that some people rush in where the great Prophets of Palestine and the great psychologists of Europe would fear to tread.

We must now pass in rapid review the principal modes or manifestations of *B*.

All sleep belongs to *B*; so do day-dreams; and that other allied but not quite identical state called "brown study"; religious meditation; certain anomalous conditions produced by morphia, chloroform, alcohol, and other drugs; the hypnotised state; all forms of coma, trance, of so-called clairvoyance and clairaudience and of automatic writing; as also delirium, catalepsy and epilepsy.

Phase *B* also assumes another form, for which no popular name exists. I am tempted to call it pre-epileptic lethargy; but

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[1] I must remind the reader that *B* is defined, not by the action *Q*, but by lack of certain kinds of *P* action.

think it better not to rouse any suspicion that I am presuming to formulate new medical theories. I will therefore stick to my mathematical last, and call it the *M* variety of phase *B*. It is a rather sudden fit of intense tiredness. The patient is seized with an overpowering longing to lie down immediately and to be undisturbed. She is possessed by some haunting thought; not necessarily a foolish or bad one; sometimes it refers to some good project or holy aspiration. She is unwilling to attend to anything external or concrete; and, if forcibly roused to do so, suffers, sometimes acutely. The attacks are often mistaken, in slighter forms, for ordinary absent-mindedness, or perhaps for "sulks" or "affectation." Friends, as a rule, either ignore them, or try to rouse the patient. But there is a look in the face and a curious coldness of the extremities, which should (though too often it does not) attract their notice and induce them to seek medical advice, or at least to be on the watch for the oncoming of graver symptoms. On the other hand, I have seen one heavy attack which might have been mistaken for sleep or for actual coma, so profound was the apparent unconsciousness; but it differed from sleep in the much greater difficulty of waking the patient by any ordinary means, and from coma by certain specific symptoms; e. g.: by the senses' responding to stimuli previously associated in the patient's mind with the special thought which haunted the *M* phases. If the patient is so fortunate as to have friends observant enough to see the need of medical care at the *M* stage, the doctor's verdict will probably be that some serious brain trouble (delirium or epilepsy) is impending, which may probably be warded off if the case is in the care of any one possessed of the necessary resolution. The most important precaution is to anticipate the *M* phase by getting the patient into bed, a little before the time when *M* would come on (which is easy to do when *M* is periodic, as it often is) and, if possible, to induce sleep. This breaks the habit of falling into *M*.

During some modes of phase *B*, *Q* gives back to *P* material received from *P*; but not always in the form in which that material was originally received from *P*.

During its residence in *Q* the material is transformed.

The specific note or characteristic of *P*-action is discrimination. The outer senses are mainly used in discrimination.

The specific note or character of *Q* is synthesis. "The unconscious brain of man is an organ which functions normally towards monism."[1]

Ideas and facts sent to *Q* from *P* as diverse or contrasted are returned to *P* unified: this may happen normally, or in any one of several abnormal ways.

One main function of *Q* would seem to be the formation of abstract ideas. Outer experience shows to an individual a round sun and a round moon, round fruits and round poison berries. Images of all these pass into *Q*, and from them is generated, in *Q* the abstract idea of "roundness." This is normal action. If the individual jumps to the false conclusion that the sun is a fruit, or that poison berries are harmless, because they are round like an apple, this may be due, not to any abnormality in the *Q* action itself, but to the fact that there has not been sufficient action of *P* to counterbalance normal *Q* action; as distortion of a limb may be due, not to any abnormal action of the pulling muscle, but to the fact that some other muscle does not do the counteracting pull necessary to make the whole action normal.

One of the two forms of so-called megalomania mentioned above is often purely negative. I have known several persons who believed themselves to be monarchs, or who took the name of some eminent writer. Some of them are remarkable for a calm, unobtrusive modesty. What is lacking in them is the power of accurate discrimination. What attracted them to the person for whom they mistook themselves was not his importance but his representative character.

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[1] This admirable summary of Gratry's long analysis of the world's experience on this subject was formulated for me by a young poet, M. Gilbert Chesterton; Monism in this sense meaning, not a special philosophic opinion, but a condition in which various experiences and images are fused together in the mind. Gratry believed that much monistic work of the inner mind goes on during sound, refreshing, and dreamless sleep. One main use of the waking *B* phases, he believes, is to prepare the inner mind suitably, so that its monistic work in sleep shall be of profitable kind.

When the mathematical doctrine of singular solutions is better understood than it seems to be at present, it will be seen that no act of mind is more essentially sane and normal than that of testing oneself by putting oneself in imagination in touch with a central type-figure. The type-figure must be sufficiently like the group of individuals to which it belongs, to be governed by the same laws as the group, but so related to the other individuals that some of the laws apply in an inverse way.

I would recommend fanatics who talk of getting rid of monarchy to study this subject carefully. It would lead too far from my present purpose were I to try to discuss it here. I wish now only to emphasise the fact that so merging one's personality, during phase *B*, in that of a type-figure, as to lose all sense of one's own identity, is a perfectly normal mental act; but if the power to discriminate has been insufficiently cultivated, some kind of adhesion may take place. Extreme forms of this adhesion find their way into lunatic asylums in the shape of persons who mistake themselves for some other person. Milder cases are very common outside; the patients fail to discriminate which of the laws governing the type apply inversely to the other individuals of the group; they do not see in what respects the type-figure should *lead* the group and in what respects he should only *represent* it; where the other individuals should imitate him; and where he has acted for the rest, to leave the rest free for other things. They imitate some points in the conduct of the type which, though right for him, should be inverted for them; as, for instance, when those of the nation who can afford it imitate as far as they can the splendor and fashions of the court; though the reason which justifies the splendor of the monarch is that he *represents* in that matter the whole nation.

Confused personality is not exactly anti-ethical in itself; but it leads to many catastrophes and anti-ethical actions and to much national insanity. The preventive consists in a steady habit of never accepting as final the verdict of the mind in either phase until it has been endorsed in the other phase. Mere negatively insufficient action of either phase produces acts virtually insane.

There are, however, modes of the *B* phase which are in themselves abnormal and injurious. About the sleep mode and the epilepsy mode no difference of opinion exists; all authorities agree that a moderate amount of sleep is desirable, and that epilepsy is undesirable, for all persons. About other modes of *B* differences exist. Most of these differences, however, are due to the fact that writers and speakers, on one side or the other, or on both sides, are ignorant of information which exists in the world, and which usually they might have obtained had they desired to do so. There are parents and teachers who disbelieve in the value of "day-dreams" and abstractions and "brown studies," and who consider all indulgence in such "waste of time," if not even positively injurious. Such persons simply have no adequate knowledge of the nature of the mental action of abstract thought which goes on in day-dreams.

In such conditions as those called clairvoyance and clairaudience, the action of *Q* seems to be accompanied by some disturbance or stimulation of the cerebral portions of the organs of sight, hearing and touch, which produces, without external stimulus, a sensation as if of seeing, hearing, or being touched. There are some who attach enormous values to these sensations, as tokens of a condition of revelation from the Unseen. Such persons appear to be unaware that revelations of Unseen Unity, from *Q* to *P*, are of frequent occurrence in the life of every normally rhythmed brain. They also disregard as "materialistic" the wise cautions given by brain-and-nerve specialists, that the stimulating of the anomalous sensations is a danger to moral stability and to continence of nervous energy. There *are* even persons who believe in the spiritual value of trance and catalepsy, in which the power to pass at will from phase *B* to *A* is suspended. But even supposing all the facts adduced in support of this opinion to be proved true, they do not seem to me to constitute any evidence, that catalepsy, trance, or clairvoyance are more valuable states, spiritually, than the more ordinary modes of *B*; and their danger to moral soundness seems indisputable. For it surely must be a bad precedent for the constitution, so to speak, to encourage sense-organs, to act, in the ab-

sence both of habitual association and of appropriate external stimulus, and under mere wafts of impulse from *Q*, in a manner withdrawn from the control of the Will.

But on the other hand, nothing could be more unwise than to teach young people to believe that visions, voices, etc., are mere delusions and are not signs of inspiration or revelation. They *are* signs—though irregular and useless ones—of a condition in which the consciousness is being informed from the spiritual centre within man, wherein is being perpetually generated the conception of Eternal Unity. However much teachers may deny this great truth, evidence of it may burst upon any individual during severe illness, and upon a highly neurotic subject even without special illness. It may burst in with such suddenness and force as to endanger the reason. And even if the shock of evidence is not sufficient to injure the subject directly, it is likely both to shake his confidence in his teachers and to weaken any good habits which may have been formed on the basis of disbelief in his direct inspiration. It is surely safer to accustom young people to know that inspirations towards Monism are a normal part of every human life; that the phase in which they occur is sacred and should be respected in oneself and others; that the organisation should be trained to fall into this phase at regular and convenient times; but that in case the phase is ever accompanied by specific physical sensations (as of sight, hearing, etc.) such sensations are a sign of something slightly wrong, and indicate a need for care of health, for the avoidance of mental excitement, and for careful moral self-restraint.

There remains to be considered the condition of what is called automatic writing. Gratry says that if a student sits every day at the same hour in a room alone with a pen in his hand and "makes silence in his soul" (i. e., suspends conscious thought); he will write down suggestions about the Unity of Nature, which will sometimes prove of great value for his future studies; suggestions which, when he reads them over afterwards, will seem to him quite new; and which therefore he might have lost if not written down at the moment. Many medical authorities disapprove entirely of such

practices. Two points seem to me clear: Though Gratry knew of some valuable results of this automatic movement of the hand under the impulsion of *Q*, he cannot have had a sufficiently wide experience to decide that it is productive of no harm in the long run. On the other hand, the medical authorities who denounce all attempts thus to use the hand as a recorder of processes going on in *Q*, can seldom have had the opportunity of watching an experiment of the kind carried on in the sober and orderly manner described by Gratry. On this point therefore we may say that there exists a genuine difference of opinion among authorities worthy of respect, owing to lack of adequate knowledge of facts,—not merely on the part of ignorant persons who might know if they would, but in the world as a whole. Evidence here is still a desideratum. I would venture to suggest, also, that those who object to the practice of automatic writing seem to me to be somewhat misled by a false analogy. The arguments against encouraging clairvoyance and clairaudience do not apply to automatic writing, which is not a conscious sensation or sense-perception, but an act, often almost or quite unconscious. Any argument against it, *a priori*, would apply to all artistic improvisation in music and painting: a fact which almost disposes of such argument by the method of *reductio ad absurdum*. One precaution, however, I feel sure all authorities would agree in recommending is: the individual should decide for himself, in some fully awake phase, whether he will or will not allow himself to become an automatic writer. If, in phase *A*, he decides not to do so, he should not let himself write during phase *B*, till fresh consideration or fresh evidence has altered the waking judgment of phase *A*. There is another caution, given by Gratry, which my own experience and that of others with whom I have conversed endorse:

What is written "under inspiration" is addressed to the individual; it is the record of a message sent, as it were, from his subconscious organ of Monism to his conscious intelligence. No one but himself is likely to understand it rightly as it stands; for it refers to material lodged in his memory and there fused into unity.

It is moreover often expressed in a symbolic shorthand, the vocabulary of which is not possessed by any section of the public.

An analogous and very important caution is that, however clear may seem, during phase *B*, the advisability of making any change in the course of outer life, no such change should be actually made or attempted, until the verdict of *B* has been endorsed by *A*. If this principle were taught as a general canon of ethics, and brought into conscious recognition during normal health, it would spare many moral tragedies.

We can now formulate a definition of an *ethically stable* nervous system, as one in which has been cultivated from adolescence the habit of acting in phase *A* on motives revealed during phase *B*; and of abstaining from acting on any motive revealed in *B* which the *A* phase has not passed in review and endorsed.

Now as to the motives which sway the individual phases *A* and *B* respectively, and which govern the formation of habits.

These may be divided into three classes, as follows:

Y. Motives which act in phase *A*, but which are suspended and inefficacious in *B*.

Z. Motives which are felt to be potent during *B*, but which to the waking reason of *A* seem either fantastic, chimerical, or too refined, too altruistic and exalted, to be acted on under the present condition of things.

X. Motives revealed to consciousness during *B* and which the waking reason of *A* endorses.

Motives *X* form the stable basis of character for the individual; the centre of gravity for his moral being lies among them.

The lines of demarcation between *X*, *Y*, and *Z* vary in different individuals; a motive which is *X* in one individual, may be either *Y* or *Z* for another brought up in the same rank of life, the same religious or political community, even in the same family.

Though a teacher seldom has direct access to phase *B*, though words spoken by him while *B* lasts seldom enter the mind otherwise than by first rousing the subject into *A*, yet a teacher can often find out what topics interest a pupil, what motives sway him, during *B*.

Now it seems obvious that ethical stability will be best secured by basing good habits on motives *X*, rather than on motives *Y* or *Z*. There may be no motive of class *X* which is found as potent in phase *A* as is some motive of class *Y*; nor as stimulating during *B* as some motive *Z*. The wisdom of the educator will be shown by his choosing to work slowly at founding good habits on *X* rather than to produce results perhaps more immediately satisfactory by exploiting the temporarily greater but less persistent potency of either *Y* or *Z*.

The teachers who have what is called "the practical common-sense given by wide experience" err on the whole in the direction of exploiting motives *Y*. They have wide experience of the course of life which sends children out of school in a condition apparently satisfactory, and which keeps them steady and industrious for a few years after leaving school. They also know what methods produce a high percentage of brilliant results. But they know little about the percentage of real wreckage and failure in middle life owing to breaking down of an erection of good habits based on a foundation within the compass of which the true moral centre of gravity of the individual does not lie. Wreckage often results also from the influence of inspired and devotional teachers who appeal to spiritual and altruistic motives which for many of their pupils belong to class *Z*, not to class *X*. Such a teacher often does become cognisant of the after-wreckage, and bitterly laments that so many of his followers have left him and reverted to "the world"; alas! what is far sadder than his disappointment is that the pupil too often finds himself in the world without any provision of habits of acting sanely and morally on any motives suited to his true and persistent self.

Every religion which asserts a dominant motive of action is, at the first, selective; those who feel its motive an inspiration accept it as their ideal. But when a religion begins to take itself for granted as having rights, as able to provide the normal motive for all, its power to induce physical, intellectual, and moral wreck is great in proportion to its immediate influence for good. And this is necessarily the case, however true may be the religion in itself.

Victims are truly sacrificed to the Moloch of religious fanaticism; however pure in itself may seem the ideal of the religion under which they suffer. Odin was originally a prophet who taught the worship of the *Allfather*; yet men were burned to death in his honor. "Crucifying and burning were merciful inventions compared to laying the seeds of nervous disease in the constitutions of children . . . which is what people are doing now in the name of religion."

The first of the causes of moral wreckage during nervous break-down is, then, the wearing out of the moral sentiments too young; the second is inducing young people to base their moral lives on a motive which does not appeal to them in all phases of the intellectual life.

Before proceeding to investigate the third great cause of future moral wreckage, it may be well to work a few examples. The reader is requested to take the following, not as a summary of ethics, but as isolated examples of the working of an algebraic notation, analogous to the practical examples which follow the theoretical portion of a chapter in a treatise on arithmetic. They are intended, not to dogmatise about conduct, but to illustrate the working of a method of investigation.

a. Supposing one had charge of a person whose medical advisers ordered him to be kept awake for a certain time (e. g., one suffering from an overdose of opium, etc.); what mental condition should one try to generate?

Ans.: Appeal to motives Y rather than X; and beware of motives Z. Also endeavor to fix attention on thoughts of discrimination, not of generalisation; of conflict rather than of unity. If the patient is fit for conversation, speak of any topic as to which he differs from somebody else, rather than of any topic, however interesting and exciting to him in health, his interest in which is of an abstract nature or depends on seeing unity among apparent opposites. Before he is fit for conversation, one may be ordered to shake him or slap him with wet towels; one should not apologise, or tell him one was doing it for his good; but rather try to irritate and rouse the sense of antagonism. One should not adopt a kindly

and pitying tone, but rail at him for perverseness and wilful laziness; rousing him, if possible, to protest that he cannot help going to sleep. (This example has been worked out by me on purely abstract grounds. I have had no experience of opium-poisoning, nor do I know what mode of speech is advocated by medical practitioners in such cases.)

b. Suppose one had charge of a person subject to *M*. The medical orders in such a case are to forestall each fit of *M* by inducing normal sleep a little before the time when *M* would otherwise come on. Having got the patient into bed and warm, and having administered a little light food, how shall one so direct his thoughts as to prevent *M* turning into some form of *B*, universally admitted to be bad (delirium or epilepsy), and induce it to take instead the form universally considered good, i. e., normal sleep?

Ans.: If the patient is a well-protected neurotic, do not try to direct them at all. Explain to him, once for all, the general direction to be taken by the treatment. Tell him that the usefulness of his whole life depends on his own docility and courage now. Bid him find out for himself what is the real core and centre of his heart's interest, what he cares about in all moods alike; what is "the soul that makes him one from first to last." Tell him to fix his mind on that sacred object whenever he lies down. When you have got him into bed, do not talk to him at all, except in response to his wish. If he likes to be read to, read what he wishes.

But if the patient belongs to the unprotected class, he will probably be unable to find his way in the tangle of morbid impressions; and you will have to direct him. Trance and epilepsy involve what may be called an irregular *fall* into an abnormal form of phase *B*. Therefore avoid as far as possible any appeal to motives *Z*, in order not to precipitate a too rapid fall towards *B*. Avoid also motives *Y*, lest you prolong *A* till the too rapid fall comes from overfatigue. Appeal entirely to motives *X*; and occupy the mind, not with abstract thoughts of unity, but with the *unification* of some ideas which the patient himself has lately been seeing in contrast or conflict.

This answer also has been worked out by me algebraically;

but, besides working it out, I have had a little opportunity of observing the efficacy of the method; especially in one case where a physician warned me that some terrible collapse, perhaps epilepsy, was imminent unless I could change *M* into normal sleep at once. The patient, a girl of seventeen, had been fearfully overstrained owing to family worries, and had then been half hypnotised by a powerful preacher who was himself in a state of unhealthy agitation about what he considered the pernicious influence of a certain scientific philosopher.

Now I venture to think that almost any one who had to treat this case by the light of empirical common sense would have decided to discourage the girl from thinking of either home cares or religious controversy, and would have tried to interest her in other topics. But it would be difficult to fix the attention of a patient on any fresh topic while so overstrained a state lasted; and, even if one succeeded, it could only be by introducing a new subject of excitement powerful enough to over-ride the two already in possession of the field. Algebraic analysis suggests a different way of carrying out the medical instructions, viz.: the *unification* of the antithetic tensions. I told the girl that her pastor's agitation was due mainly to verbal misunderstanding; and that what was chiefly needed in such a case was the presence, in his home, of a calm, wise woman capable of furthering his main aims, by correcting the mere accidental errors into which his very earnestness led him. I filled her imagination with the ambition to become a woman who might render such service to some inspired teacher of the future. I thus pulled together, so to speak, the tension on womanly duty of her active home life and the tension on religious ideals of her religious dream-life. And, every time I got her into bed, I read to her passages from the works of the obnoxious philosopher which expressed aspirations similar to those of her pastor but clothed in language which the latter could not understand. The success of this treatment was so marked that I was more than consoled for the storm which burst on my head when the divine learned that I was indoctrinating his most promising catechumen with the views of the infidel whom he had denounced; he had the discretion to be

silent about my iniquity in presence of my patient; and I here mention his anger only as an instance of the difficulties which hamper teachers in the attempt to carry out medical advice.

c. What should be the dominant characteristic of thought when preparing for repose?

Ans.: Unity: rather than classification, discrimination, contrast or strife.

d. What should be the dominant characteristics of active study?

Ans.: Classification, specialisation, contrast.

e. How can an adolescent minimise for his future the risk of accident from carelessness (by fire, being run over, etc.) during fits of brown study; and of suicide during some short period of mental aberration?

Ans.: By linking all habits connected with self-preservation, during the process of formation, with some motive connected with a cause revealed to him in a day-dream and approved by his waking judgment.

f. What should be the ideal present to the mind during private prayer?

Ans.: Some ideal which has not been merely thrust into the mind from outside; but which has been revealed to the individual from within in some inspired moment, and afterwards recognised by his reason as worthy of devotion.

g. What should be the characteristics of a religion publicly taught for the purpose of establishing ethical conduct on a safe basis?

Ans.: It should be neither polytheistic, nor dualistic, nor purely monistic, neither should it be in any sense idolatrous. It should present to consciousness an ideal of human character; but should not present any conceivable ideal of any sort as an object of actual *worship*. The object presented for worship should be an inconceivable Unity from whom emanate all differentiations, and who wills that men should differentiate and discriminate. This leaves room for each soul to find for itself its own ideal of motive.

(The reader is requested to observe that the above is given as the answer, not to any question about the nature of God, but to a

question about what is the kind of public religion most conducive to ethical stability in man.)

h. Are there any precautions which an adolescent can take towards the protecting of his future self from the risk of becoming, in middle life, a morphia or alcohol maniac?

Ans.: Convivial drunkenness is under the control of the will at the time; the man should avoid it by avoiding company where he is tempted. But a habit of solitary nipping, begun to relieve nervous symptoms, may overtake any neurotic, however strong his intention to avoid it, unless he has prepared himself by two precautions beforehand. He should form in youth a steady habit of connecting the care of health and the regulation of diet with the desire to maintain his fitness for some work, the value of which has both been felt by him as an inspiration and been believed in by his reason. And he should avoid taking, during solitary day-dreams, any more than his usual allowance of fruit, lemonade, sweets, or anything specially enjoyable. It may be well to exceed that allowance occasionally; but it should be always, if alone, while engaged in reading or some active pursuit; if in company, while talking of external things, not while engaged in the endeavor to arrive at inner principles.

Few things are more important for ethical stability than the habit of connecting dreamy moods, not with extra physical indulgence, but with slight extra physical abstinence. (This caution in no way relates either to general asceticism, or to severe fasting at any special times. The nature and quantity of the food taken should be settled by each individual under medical advice. The special psychological caution is that impulses towards special physical enjoyment should not be obeyed in phase *B*.)

This habit of abstinence from extra indulgence during all dreamy moods is the habit that confers on the organisation the extra-natural power of which I spoke, of arresting the action of an organ which the Will cannot for the moment guide. It is the secret of longevity for the higher mental faculties.

k. How should a girl under twelve be taught habits of neatness in dress?

Ans.: By being sent back to make herself clean and tidy whenever she has neglected toilet operations. This should be done in a cheerful, matter-of-course way, giving no reasons and appealing to no motives. The child should be left to find out for herself whether her motive for taking pains is pride in her personal appearance, or the wish to avoid being sent back, or the desire to please her mother. If she asks why one should be neat, she should be told, in general terms, that one should form the habit of doing accurately whatever one is bound to do at all, either by duty, or by necessity, or as hygienic exercise; and be careless only about things done for no purpose except to facilitate absolute relaxation.

l. Suppose a girl has the essentially artistic temperament; she has the natural tendency to arrange life and thought on artistic, rather than ethical, religious, or scientific lines. What mode of education is least likely to cause her, supposing her health gives way, to become either conspicuously slatternly or excessively extravagant in dress?

Ans.: We will suppose, first, that she is prepared for confirmation by an enthusiast who denounces the lust of the eye and the pride of life; and dwells on the simple tastes and ascetic tendencies of great saints, the beauty of holiness, and the wickedness of spending money in vain show which is needed by the Lord's poor. This exhortation passes down into the girl's inner mind, all the more plentifully because the preacher is to some extent hypnotising her by his earnest personality. It is there seized upon by her own true temperament, and fused into an ideal of simple living, which is artistic in its essence, but is mistaken for a religious ideal. It of course begins to externalise itself in frocks of severely simple cut and devoid of ornament; in little economies, and in contributions to charities large for her means.

All this has been dominated by a *Z* motive. Her waking external self has seen the "beauty" of many things besides holiness and nun-like customs. She has resisted the temptation to see the loveliness of the outer worldly world, as a wile of Satan. But every time she has seen it, it has done something to unsettle her puritanism. If she remains fairly healthy, she will, on reaching

maturity, gradually "out-grow" her religious phase, and probably adopt a mode of dress dominated principally by artistic quality; but all the more artistic and picturesque, because, during her ascetic period, she acquired a *habit* of simplicity. But if the breaking down of the artificially induced religiosity should happen to coincide with nervous break-down and general failure of mental power, she has not the force necessary for reconstructing her life. The artistic nature may assert itself so suddenly as to carry away all habits, and so imperiously as to set up a tendency to buy at random whatever she feels momentarily capable of using in any artistic combination, regardless both of suitability and of cost.

Now suppose that this same girl had not been religiously impressed, but had been captivated by a refined woman of the world, who showed to her the beauty of a society where each individual dresses and behaves with regard to "fashion," that is, to the prevailing taste of the majority at the moment, rather than in conformity with her own personal taste. Fashion, as a social factor, is seen, in *A* phase, to have an ethically artistic value as a social combiner; the girl throws herself eagerly into the task of making herself socially irreproachable. But every now and then, in *B* phase, the deeper nature within her reveals to her that humanity consists of many parts besides fashionable "society," and that fitness for that society is a very partial mode of taking one's place in the great whole; and, in particular, that all true artists would like the effect of her dress better if it were less fashionable and more really artistic. Every impression of this kind weakens the foundations on which her habit of care in dress is being built up. If she remains healthy, she will gradually shift the habit of attending to her dress on to a more really artistic basis, one more conformed to her true self, and therefore more stable; and then the habit itself will be of great use in assisting to carry out her new and deeper conceptions of what is suitable. But if the discovery of the foolishness of fashion coincides with a failure of power, the whole habit of attention to appearance is likely to give way; and she may drift into the habit of a slovenliness which is often sordid, and yet, by fits and starts, very picturesque.

But if the girl of artistic nature falls into the hands of a teacher who inculcates both simplicity and neatness as factors of a harmonious existence, her dress may be at first neither as simple as under the former of the two modes of treatment described above, nor as careful as under the second. But the simplicity and the neatness will probably be of life-long growth. If she preserves her health, she will probably combine with them some form of artistic career,—whether as painter, musician, poetess, or novelist. But should her mental power give way, she will remain daintily neat and quietly picturesque in dress, and perhaps become moderately successful in some art on an amateurish and domestic scale.

* * *

We now come to the third cause of moral instability; the one which I have likened o a water-leakage. The majority of teachers try, as I said, to keep their pupils out of normal monistic phases, to an extent not sanctioned by any great psychologist. All sorts of excuses are made for this: the need to use up time in learning to know the outside world; the examinations looming ahead; pressure of competition, etc., etc. These excuses seem genuine, until one notices that the manner in which the practice of average educational practitioners differs from that of great educational authorities is reflected in other regions, where no such motives can possibly have any sway. For instance, in a large lunatic asylum where I have stayed on visits, the doctors and nurses seemed to me as kind and conscientious a set of people as I ever saw; but thinking of their conduct in the light of certain admitted principles of medical psychology, I often found myself wondering whether they or the patients were the more insane. The whole staff seemed to me to be simply mad of a monomania for pulling patients out of phase *B* into phase *A*, because they did not know how to guide phase *B*. On one occasion I was sitting in the part of the grounds reserved for the more intelligent and cultured patients, when a somewhat glaring case occurred of irreverence on the part of a good-humored and kindly nurse towards a patient's attempts to recover a lost clue of memory. When the nurse left us, a conversation took place among the patients, of which I remember the following scraps:

"We are here not to be cured of a disease, but to be taught to lie." "No one helps us to guide our minds"; "none of the authorities know any psychology." (Some of the patients knew enough psychology to be excellent advisers to each other.) I should like to hope that the staff of this institution were more ignorant than such officials elsewhere.[1] But the nurses showed me a printed examination paper, sent to candidates for a certificate of competence to undertake the charge of patients suffering from mental disease; as to which I could only ask myself: "Is it possible that any sane man could have drawn up such a document in a world wherein great masters of psychical science have lived and written?"

The ordinary teaching of any religion differs, in a similar direction, from the precepts of its founder. Every great founder of a spiritual religion aims at so organising thought and action during *A* as to make it act on *B* in a way which causes each *B* phase to react usefully on subsequent *A* phases; the ordinary teachers of the religion make of the very words of the founders on that subject part of the apparatus used by them for the purpose of keeping pupils in phase *A* and out of phase *B*; as, for instance, when parents occupy what should be the Sabbath repose time, in making children learn and repeat and paraphrase passages from Scripture about the duty of keeping Sabbath, and the unity of the Divine Essence; about communion with God and about not grieving the Holy Spirit.

The truth would seem to be that commonplace persons of all kinds fail to understand directions given by great teachers for the sanitation and guidance of phase *B*; but they understand how to pull the pupil or patient from *B* to *A*; and, as that is all they know how to do, they suppose it to be all that is worth doing. All kinds of mental treatment tend, when they become popularised, to slip down hill, from the attempt to sanitate phase *B* towards attempts to eliminate it.

But no intellectual culture is possible without some monistic action of the mind; teachers therefore interrupt *A* action every

[1] Asylums kept by members of the Society of Friends are said to be superior to most others in this respect. The Friends have the hereditary habit of respect for silent communion with the Unseen.

now and then to insist that pupils shall set up irregular short scraps of *B* action in the middle of *A* action. "Think, children, think, what does this remind you of?" "Don't you see that . . . .?" They expect to receive immediate answers to questions sprung on the class in the middle of work; questions of a kind which should have been asked only at the end of the class, and left to be thought out at leisure and answered on some future day. This of course tends to weaken and disorganise the faculties of comparison and the grasp of general principles, in the majority of pupils. But there are always a few "naturally protected" monists, in each generation, whom teachers may to some extent harden and make inefficient, but cannot turn aside from their true function. Some of these become what are called philosophers: men who spend their lives in writing ponderous books, to prove simple truths which ought to occur naturally to everybody. These men present to the outer consciousness of their readers and hearers ideas which should never come into consciousness except as the latter is informed by the unconscious or inner mind. The path of such a teacher is often marked by a broad track of nervous and moral wreckage: a phenomenon which seems to astonish many persons, but which appears to me as little to be wondered at as the digestion wreckage which would follow in the wake of a physician who should insist on feeding his patients with ready-made chyle. Few things are more important to mental health than that each individual should be able to generate within himself as much monistic philosophy as he is ready for, and should have the instinct to avoid absorbing any more than he is fit for.

Ethical teachers, in years gone by, observing the baleful results of teaching to the masses any monistic or pantheistic ideas, used to rail at those ideas themselves, and declare them to be contrary to religion and dangerous to morals. They had better have directed their attack at the attempt to put in from without what should have come out from within. Pantheistic philosophy is not in itself more dangerous than the great generalisations of algebra, geometry, or logic; which also should come out from within after the facts have been put in from without.

The truth however must be faced that *all* monistic work, when done on a serious scale, brings with it its own peculiar dangers. This brings us to the fourth cause of moral wreckage; lack of due preparation for the visits of the Great Inspirer.

A mathematician once said, in allusion to some of his own discoveries, "There are some things that could never be done unless some men would consent to be ill in order to do them." He meant to designate by the word "ill" a condition not morbid in itself, a condition strictly physiological not pathological, a condition which resembles parturition rather than disease. It is normally attended by some symptoms often associated with illness; and, without being disease, it is a condition favorable to the setting up of certain forms of disease unless special precautions are taken to prevent it. No great original work in abstract science, no great generalisation in any natural or physical science, is made, nor is any great work of art generated, without the author having gone through one of these singular phases. Parturition in science or art is a special mode of phase *B*, in which the faculty of monism goes through a period of work unusually profound and prolonged; the externally discriminating faculty being wholly or partially in abeyance for a longer period than usual. The individual is absorbed into communion with τὸ πᾶν, the I Ąm, the Great All, with whom a thousand years are as one day, and to whom all that is made seems good alike. Now the Greeks have told us how Pan manifests himself to many of those who commune with him without due preparation.

No human being, however good his intentions, can be sure that when he is in a deep fit of scientific or artistic abstraction, he will be able to feel, to any ethical purpose, the difference between lemonade and brandy; between an innocent sweetmeat which pleases his palate and some nauseous drug which gives him experience of new sensations; between the sensuous sting of a self-flagellation and the sensuous sting of a fleshly lust; between his own wife and other men's wives; between other men's sisters and his own; between a woman and a child, or a man, or a beast. All habits of moral discrimination may be suddenly merged in one flood of monistic generalisation; and if the constitution has set up

a habit of indulging, during phase *B*, any kind of freaks of physical caprice or curiosity,[1] there can be no security against any sort of sudden crime in some such phase; or against its becoming the starting-point of a vicious habit. The only kind of habit which is a safeguard is that of abstaining in all dream-moods, and as long as any haze of dreaminess remains, from all stimulation of strong sensation, from all modes of gratifying caprices of appetite, and from all active and positive violations of the established routine of one's ordinary life. The condition to be aimed at for creative moods is, not physical discomfort, but physical neutrality; the possibility of forgetting, as far as may be, that one has a body. This neutral condition should be prolonged till the outer *A* consciousness has been fully re-established. On the other hand, slight departures from routine in the negative direction are eminently desirable in dream-moods. A little less indulgence than usual in any kind of food which is either a special pleasure to the palate or a special strain on the digestion; a little less stimulant; and especially less indulgence in witticisms, jokes, and flippant conversation, should be a matter of course during moods of creative generalisation. Any compensating indulgence which may be thought necessary should be taken afterwards.

The tactless mother, sister, or young wife who worries a man possessed of any originality with such remarks as:

"You are working so hard just now; I am sure you need more food than usual; and you are taking less. I am sure a glass of wine couldn't hurt you. Why won't you eat lobster salad this evening? You generally like lobster salad. Are you ill? Is your stomach out of order? Why are you so unsociable? What makes you look so solemn? What have I done to offend you? I don't believe you care for me as you used to do." Or, "Why won't you take Lydia Featherhead out to hear the nightingales? Don't be such a prig; her liveliness doesn't mean any harm; it is only her manner. How can you be such a bear to a girl who admires you

[1] The combination, or rapid alternation, of monistic thought with attention to physical sensation constitutes a form of phase *C*.

so much?" etc., etc., may be doing worse than merely making herself a nuisance; she may be preparing the way for some ghastly tragedy, by breaking down the fences which the man is instinctively building up for the protection of his future life from moral ruin. It is pitiful to observe how strong is the instinct of self-protection in this matter, in most young people possessed of real genius; and how frequently it is undermined by conformity to the wishes of friends or to social custom. Probably some of the most revolting forms of decadence in literary and artistic circles have owed their origin to Academic Symposia where youths discuss the underlying principles of life and science and art, in a luxurious atmosphere, where what is only meant for a graceful hospitality favors indulgence in choice fruits, coffee, and cigars, with a very moderate quantity of specially flavored wines, or even without any wine at all. He who is to do great original work, either of abstract generalisation or of artistic conception, must be a consecrated priest of holiness if he would not become an agent of evil. Monistic perception of relations among the most innocent seeming material, if undertaken under unsuitable conditions, is a long step on that downward road which is paved with good intentions; and at the end of which stands Pan, the Satyr, grinning at the foulness in which all things are confounded.

Neither piety nor habits of general asceticism seem to be of much use here; fasting prolonged till one feels painfully hungry is as dangerous as drinking till one feels gloriously drunk. The most pious saints, those who most habitually mortified the flesh, have been among those to whom Pan appeared in his vilest forms. Nor on the other hand, does mere attention to physical health seem much of a protection; disease is as often a consequence as a cause of a career of bestiality; such a career may easily be slipped into from a condition of buoyant health.

But, in spite of all dangers, monistic generalisations must go on; and mankind must find out how to make them safe. The fertile union of polar opposites is an essential element of all true being. No medical system would be considered sound if its only notion of minimising the dangers of parturition consisted in mak-

ing as many people as possible barren; sound medical science aims at making fertility a socially manageable factor and parturition individually safe. So also sound educational science would aim at making monistic mental action not a danger, either to social order or to the sanity of the individual thinker. The worship of unity is the first commandment in the ethical Decalogue. If associated always with meditation and abstinence, it is the first step on the road which leads "to those fountains whose streams run never dry; to those holy heights of Being where all resentment die;" and where, to the purified soul, all things alike are pure.[1]

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[1] I would humbly venture to suggest that Nordau, and even to some slight extent Dr. Maudsley, have been misled by a false assumption. Because the heavy monistic dream-state in which great ideas are conceived has some of the symptoms of mental disease, and also is one in which mismanagement easily induces disease, they have supposed that that state itself is in its nature unhealthy. It should be remembered that many women are, on the whole, the better in health, not the worse, for occasional parturition under safe conditions.

My warm thanks are due to Professor Wm. James for valuable corrections and suggestions in connexion with this paper.

EXPERIMENTAL INVESTIGATIONS OF TELEPATHIC HALLUCINATIONS.[1]

I.

"Acta non verba."

IF there is a problem that occupies mankind more than any other it is undoubtedly that of death, or rather of the further side of that eternal trance and its probable to-morrow. Primitive man, like his fellow of the twentieth century, was hypnotised by this sudden cessation of organic vitality and the destruction of a brain in which were sighing so many dreams and slumbering so many desires, especially the consciousness of endless existence. The psychology of this contemporary of the past ages of mankind when society was not yet organised, so far as we are able to conjecture it by more or less exact inductions, speaks conclusively for this need of immortality, a need which possesses us of more civilised times to such a degree that we very easily grow daft over the crudest reports which hint at the persistence of our *ego* beyond the terrible bounds of death.

Life, or the adaptation of our organism to its environment, is of such a nature that the persistence of our individuality is, as Spinoza said, a psycho-physiological and psycho-social necessity, which represents the essence of our nature and is at the same time the only force that directs and shapes our aims, a vague obsession that is mournfully projected during each stage of life into a distant and

[1] C. Flammarion, in his work *L'Inconnu* (p. 223), accuses M. Marillier of having misrepresented the sense of the title of the English book *Phantasms of the Living* by translating it "Telepathic Hallucinations." But the phrase seems to me well chosen and exact, and I shall employ it as adequately suggesting the scientific and psychologic value implied in these psychic phenomena.

ever more distant future, an intangible chimera. Yet despite all the deceptions and all the griefs endured by all the past generations, despite the conclusive demonstration that in this obsession we are but dreaming, amusing ourselves with more or less subtle argumentation, reveling in one illusion only to mourn another, despite the experience of thousands of generations we continue persistently and constantly to dream, to beat upon this mysterious gate of the unknown which down to the present day has but returned a distant echo of our prayers in the form of legends, dreams and beliefs, which have intoxicated our mental life and actually systematised our thought on this topic.

The end of the nineteenth century will mark an important date in the history of this branch of science, for never until now have these vague suppositions, these light and tenuous tissues of false judgments, of legends, emotions, dreams, and beliefs been subjected to a scientifically methodical and systematic investigation by specialists. Fantastic hearsay-reports, the value of which varies with every temperament that intercepts and transmits them, can be made to render up their truth, if they contain any, only by experience and observation. For we must not pass over in silence this need of eternity, this hunger for survival, which, to say nothing of the logical intellectual necessity for giving account of oneself, has always been fed, and continues to be fed increasingly, by facts and marvels confirmed by the first comer and accepted by everybody else. And the facts have become so numerous, as confirmed by this great human public, that they have entered into the hackneyed domain of "facts that are not even discussed."

To this stock of common rumors has been added the authoritative opinion of many thinkers who while masters of experimental science have not ceased for a moment to give credence to these beliefs that border on the miraculous. Consequently there must be something in the matter, even if it be no more than a systematic hallucination, conscious or not, which forces itself like a pathological obsession upon every thinking being.

What, then, is this question? It is difficult, if not impossible, to formulate it; however, it is necessary to do so if one is to treat

the question in a scientific manner, *more geometrico*, as Spinoza said. The undertaking is logical, and scientific methods imperatively demand it.

If we study it close at hand with the strict technique of the exact sciences, we become convinced that even in the public mind and in the everyday general conception the problem has two aspects: the first deals with the possibility of annihilating space, putting oneself into relations with another living being who is breathing, sighing, or suffering in the torrid atmosphere of India, on the smiling plains of Lombardy, on the banks of the Danube, or anywhere else. The miles that separate two brains count then for nothing, and sensation, that inexplicable marvel, traverses space with miraculous speed to excite in the brain of the receptive person an image corresponding adequately to the original stimulus. The second aspect touches the apparition of the spirits or images of the dead after the dolorous stage of death and the dreadful sequestration beneath the burden of the sod. Death now amounts to nothing, and the image, the spirit, the soul—we cannot say just what—escapes this envelope of brute matter to assume the impalpable garb of a diaphanous phantom which rides upon the moonbeams, traverses the starry firmament and appears from time to time to those well beloved, to recall to them the memories of the past, the life of the time when like them it too was alive, a dreamer, an earthen vessel. And, more miraculous still, these phantoms have been photographed; consequently their impalpability is of the nature of ether, since their essence—an image—can make an impression on a photographic plate.

These perpetual problems in the brains of scholars have changed their data while retaining the strong metaphysical stamp, the diaphanous garb of dreams and of the supernatural. There is one very great excuse for this. The problem offers no immediate data, but presents itself in very vague form. Yet why should we not try to classify the facts that have been gathered, to bring a little order into this world of hallucinations, for who knows but there is a great truth here, something that may escape us. The diamond as

well as the ores of the precious metals need special reagents to bring out all their brilliant possibilities.

And what do we know of life? Whence come the limitations of our knowledge? The future may bring us so many surprises! In this connexion we cannot avoid reproducing some words from the beautiful preface which M. Charles Richet wrote for the French translation of *Phantasms of the Living*.

"When we compare our knowledge of to-day with that of our ancestors of 1490 we marvel at the conquering march of man within these four centuries. Four centuries have sufficed for the creation of sciences which had no existence even in name, from astronomy and mechanics[1] to chemistry and physiology. But what are four centuries compared with the future which is opening to man? Can we suppose that we have in this short time exhausted all that it is possible for us to learn? In four centuries more will not our great-grandchildren of 2300 A. D. be astonished at the ignorance of our day? And still more astonished at our presumption in denying without investigation what we do not understand?

"Yes! Our science is too young to have the right to be absolute in its negations. It is absurd to say: 'We shall go no further; here are facts that men will never be able to explain; here are phenomena that are absurd, and which we should never try to understand, because they pass the limits of our knowledge.' To speak thus is to limit ourselves to the small number of laws already established and facts already known; it is to condemn ourselves to inaction, to deny the fact of progress, to reject in advance one of those fundamental discoveries which open an unknown path and create a new world; it is to put routine in place of progress.

"In Asia a great people has remained stationary for thirty centuries because of having reasoned thus. There are in China mandarins who are very learned and very erudite, and who pass marvellously difficult and complex examinations, in which they have to show a thorough knowledge of the truths taught by Confucius and

[1] The reference is doubtless to modern scientific and physical astronomy and to dynamics, since the ancients made considerable progress in astonomy and in statics and hydrostatics.—*Ed.*

his disciples. But these mandarins do not dream of going beyond or ahead of these teachings. They do not venture away from Confucius. He is their whole horizon, and they have become so fossilised that they cannot comprehend that there is any other.

"And yet, in our civilisations that are more friendly to progress there prevails a somewhat similar spirit; we are all more or less like mandarins; we should like to enclose the sphere of our knowledge in our classic books and prohibit going outside of them. We reverence science, and not without reason we pay to it the greatest honors; but we scarcely permit it to wander outside the beaten paths, the road laid out by the masters, so that a new truth runs a great risk of being treated as hostile to science.

"And yet there are new truths, and strange as they may appear to our customary mode of thought, they will be scientifically demonstrated some day. This is unquestionable. It is a positive fact that we overlook startling phenomena which we are unable either to observe or to call forth. The well-attested hallucinations which are the chief object of this book constitute doubtless a portion of these phenomena, difficult to see because our attention has not been sufficiently directed to them, and difficult to accept because we are afraid of what is new, because old and brilliant civilisations are dominated by neophobia, because we do not wish to be disturbed in our indolent calm by a scientific revolution which would upset commonplaces and official data."[1]

This beautiful page of M. Charles Richet's cannot but inspire the impartial investigator with a different conception of the poverty of our knowledge, and brings before his eyes a different ideal from that of the famous *ignorabimus* of Dubois-Reymond. *Ignoramus*, yes, but not *ignorabimus*, for why and to what end, limit so positively the condition and the power of our knowledge for all time, by the poor brain of the twentieth century? What we know, a priceless and wonderful treasure, is not sufficient to put a *veto* upon our judgment and our investigation. All these brains that are

[1] *Les hallucinations télépathique par Gurney, Myers et Podmore*, an abridged translation of *Phantasms of the Living* by L. Marillier. *Bibl. de Phil. contemporaine*, 1899, 3 ed., Vol. I., p. v.

searching and working in all parts of the world, and which are growing keener with every century, armed with more delicate and ingenious methods, will probably analyse even the true nature of a sensation, and will be able to follow the evolution of thought in time and space. What is a miracle for one century becomes a commonplace for another, and nothing is inherently impossible. Everything is probable, and the best scientific attitude is to confess our ignorance regarding a fact before denying it, and not to exclude its possibility until it is shown to be utterly incompatible with the body of our well-established knowledge—and not even then.

II.

Let us divide the subject into two chapters: The first will deal with the problem of the *transmission of thought* between living individuals, and the second that of the appearance and manifestations of the dead, which subject will be treated in another article. We shall review briefly the investigations already made, the state of the question before exploiting our own results from the observations we ourselves have made. The state of mind that will guide us, while leaving the widest range for every probability and for the demonstration of the most fantastic hypotheses, will be to see whether an observation tallies, in however slight a respect, with current scientific standards and at the same time refuses to submit to the logic demanded by all investigation and observation. Nature teaches us every day the mighty truth that there is no effect without a cause, and that there are general laws which govern in every mechanical, psychical, organic, or other manifestation.

What are we to think of the transmission of thought at a distance? A series of studies has been made by the committee of publication of the London Society for Psychical Research, the soul of which was the late G. B. Gurney, an English psychologist of great worth.

The inquiry pursued by Gurney, Myers, and Podmore at the request of the committee of the Society for Psychical Research, which had furnished to these authors the greater part of the documents used, is very remarkable. It is known that the Society for

Psychical Research, founded in 1882, aims "to devote itself to the study of new questions, without prejudices or preconceptions of any sort, in the same spirit of exact and impartial research which has enabled science to solve so many questions equally obscure and debated with equal warmth." This programme is sufficiently explicit: the bulletin which has appeared regularly ever since, has formed the archives in which numerous and minute observations on telepathy, theosophy, apparitions after death, and many other phenomena more or less close to the borders of our knowledge whether scientific or practical, are catalogued with pains and perseverance worthy of all honor.

The inquiry has been taken up in England, in France, and in the United States, and had as its aim: (1) "To collect documents relating to telepathy; (2) to determine the proportion of hallucinations which coincide with an actual occurrence to the total number of hallucinations in normal subjects; (3) to determine the proportion of persons who have experienced one or more hallucinations to the total number of the population."

A circular of questions was drawn up to this end and the following instructions, which we reproduce from the Prospectus of M. Marillier, were sent to persons desiring to communicate telepathic facts:[1] "(1) It is highly desirable to obtain from the identical person who experienced the hallucination a detailed account of the facts. The accounts should be signed (the names of the persons will not be published in any case without an express authorisation in writing). (2) The date of the event which is alleged to have coincided with the hallucination should be confirmed as far as possible by the testimony of persons independent of the subject. (3) It is very desirable that persons who have heard of the facts from the time when they took place, or who have known of them in any way, should add their accounts to that of the subject. As far as possible it is necessary that there should be no concert among those who make the reports or between them and the subject, so that their accounts may serve as checks and corrections for one

[1] *Op. cit.*, p. xv.

another. (4) If the person who experienced the hallucination or those who have heard of it took notes about it at the time of its occurrence, it is desired that they furnish copies of these notes to the Commission. (5) It is particularly necessary that dates and hours be reported with great accuracy."

The Society for Physiological Psychology in Paris organised about ten years ago a commission for the study of telepathic phenomena, the members being M. Sully Prudhomme, president; G. Ballet, professor and fellow of the Faculty of Medicine in Paris; H. Beaunis, honorary director of the Laboratory for Physiological Psychology in the École des Hautes-Études; Ch. Richet, professor in the Faculty of Medicine in Paris; Lieutenant-Colonel de Rochas, director of the École Polytechnique, and M. Marillier, secretary.

The Society for Psychical Research reckons among its regular and honorary members scientific authorities of the first rank, among whom we mention: Mr. Wm. Crookes, H. Sidgwick, Alfred Russell Wallace, Myers, Adams and others, while Gladstone, John Ruskin and Gurney were of their number. Among the corresponding members in France we may name: H. Beaunis, Bernheim, Féré, Pierre Janet, Liébeault, Ribot, Richet. In America the same investigation is carried on under the direction of the great psychologist Mr. Wm. James, and in England under that of Mr. H. Sidgwick. In France M. Marillier had begun some time before 1892 a similar investigation, but so far as we know there has been no publication of results.

The outcome of this tremendous amount of research, directed, as it seems, with great tact and with every possible precaution, has been most interesting and most definite. Telepathic hallucinations do exist, are genuine facts and correspond to actual sensations. By this expression, "telepathic hallucinations," Myers, the author of the Introduction to the *Phantasms of the Living*, meant to indicate "phenomena which may give us some reason for supposing that the mind of one man acted upon that of another without the utterance of a sound, the writing of a word, or the making of a sign." Along with this category of phenomena have been classified, not apparitions of the dead, but only apparitions

of the dying; the investigation has applied itself very methodically and published the investigations collected. The apparitions of the living are manifested in the following cases: Either at the point of death, or while a person is passing through a grave crisis he has appeared to another person.

The tabulation and abstracting of the responses received as a result of this inquiry has led the authors appointed by the Society for Psychical Research to draw the following conclusions:

1. Experience proves that telepathy, that is, the transmission of thoughts and feelings from one mind to another without the intervention of the organs of sense, is a fact.

2. The testimony proves that persons who are passing through some great crisis or are about to die appear to their friends and relatives, or express themselves to them with a frequency that cannot be explained as mere chance.

3. The apparitions are illustrations of a supra-sensible action of one mind upon another.[1]

Indeed, the facts published by these authors seem to be conclusive; they have sufficed to convince such an authority as M. Charles Richet. The analysis and the criticism of the observations is very ingenious, and we recognise on every page the effort of the authors to give a genuinely scientific aspect to their work and to utilise all the facts of biology and the data of experimental methods.[2]

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[1] *Ibid.*, p. 12.

[2] Mr. J. G. Piddington, of the Society for Psychical Research, who has had the kindness to read my article, has called my attention to a work of Dr. Parish, published in 1892, who, it seems, has made some similar critical studies on the subject of investigation cultivated by the honorable society. For myself I know nothing at present directly of this work of Mr. Parish, and I learned something of its contents only a few days ago through a *résumé* given by M. Franck Hales in the conference conducted at the Institute Psychologique International on the history of the Society for Psychical Research in London (*Bulletin de l'Institut*, No. 2, I. année, Avril, 1901). Mr. Parish has assumed an individual point of view and discusses the investigation of the Society, while I discuss and criticise the mental condition of any subject about to reply to any circular whatever that demands of him a response to such a transcendental question. We agree indeed in several points, and I congratulate myself on this confirmation. As for the replies of Mr. Sidgwick, I know them; they are judicious and skillfully formulated but err in

Since the publication of the *Phantasms of the Living* the London Society publishes regularly in its *Proceedings of the Society for Psychical Research* new observations, all of them documents of great value. In France *Les annales des sciences psychiques*, edited by Dr. Dariex and published every other month by Alcan, is likewise a record of the highest distinction for observations of this kind. Whoever is interested in these curious problems will scan the ten volumes of this publication with much gratification.

Moreover, the question has been discussed before several congresses of psychology, and recently at the Third Congress of Psychology, which was held at Munich in 1896, Professor Sidgwick made a report of new observations which were positive and conclusive.[1]

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their very eloquence and want of scientific precision. I have only to say that even if the person who replies to the inquiry gives his address and his profession, the value of his reply does not thus gain enough from the point of view of the individual mental criterium, and it is exactly toward this point that my investigations are directed.

I wish to thank Mr. Piddington especially for his kind advice and particularly for his obligingness in putting at my disposal the *Proceedings* of the Society for the detailed illumination of my personal investigations.

I limit myself for the present to this summary and synthetic exposition, intending in other publications to return to the details of my researches with the plentiful documentary evidence that I possess and of which I have given here but the essence. I shall lay particular emphasis (1) upon the psychology of the mental state of the mediums in which it has been possible to carry on this investigation; (2) on the beliefs caused by actual hallucinations; (3) on the part played by the emotions in the systematisation of an hallucination; (4) on the localisation of memories in time and space; (5) on mental synthesis and on psychic polarisation, if the expression may be permitted in connexion with metaphysical and transcendental data.

Mr. Piddington has kindly called attention to the value of these points: in his opinion they are "of great value" and worthy of the attention of the Society for Psychical Research in London (this from a personal letter). It is true that in these points lies the chief originality of my investigations on telepathic hallucinations, and I am indebted to Mr. Piddington for having called attention to them. Paris, April 20, 1901.

[1] "On a statistical inquiry into sensory hallucinations experienced while awake by persons in ordinary health." *Dritter Congress für Psych.* München, 1896, pp. 390–394.—"Experiments in involuntary whispering and their bearing on alleged cases of thought-transference." *Ibid.*, pp. 404–408.—"Ist es möglich, durch eine internationale Hallucinations-Statistik einen Beweis zu erbringen für die Existenz telepathischer Einwirkungen?" Dr. Bager-Syögren, Upsala. *Ibid.*, pp. 394–404.

III.

I am aware that Messrs. Gurney, Myers, and Podmore in their review try to refute every possible criticism and appeal even to the theory of probabilities in order to elucidate and bring out the value of the proportion between the negative and the affirmative responses. They reveal very clearly what they mean, and in no wise exaggerate the bearing of their thought, studying with truly commendable care the causes of possible error. In respect to transmission of thought they even go so far as to make preliminary experiments, zealously taking into strict account the probability of divination, suggestion, chance, etc.; and every fact is sustained by numbers, whose probability is always stated. The result is always that the number of affirmative cases greatly exceeds that of the probable cases.[1]

Such rigorous supervision ought to inspire confidence in all sincere men. But let us pause a moment to discuss the value of the data, the facts which served as the elements in this delicate calculus of probabilities. A probability opposed to a certainty is far from being a paradox, and despite the paradoxical appearance of the problem, one can calculate perfectly something that one does not know, or rather the value of what one might know and recognise. The vague instinct, common sense, is far from being in condition to set at nought the support of these learned calculations which establish well enough within certain limits the bearing of the conclusions that they involve and the application of the theory of probabilities in the realm of psychic science. Although far from having that necessary intervention which it has in purely scientific problems, all the sciences being but unconscious "applications of the theory of probabilities", it may nevertheless yield some assistance. However, we must remark that in psychology we are far from the mathematical sciences, where one may even propose prob-

[1] Read on this topic a most instructive article by C. M. Richet published in the *Revue philosophique*, 1884, Dec., "La suggestion mentale et le calcul de probabilité."

lems in probability. The initial stage often escapes us in psychology, and is in fact for the greater part of the time a subjective probability, a very different thing from that other objective probability on which the physical and mathematical sciences depend in the solution of the greatest problems, making it possible to foresee phenomena that are only partly probable.

There has been, and still is, much discussion concerning the application of the calculus of probabilities in the mathematical and physical sciences, and many problems are reduced to definite terms only through the antecedent calculation of probabilities that were foreseen and figured out in advance and then verified by experiments that were more directly determinable. The theory of games of chance has been made the subject of several monographs since it occurred to Chevalier de Méré in connexion with "a cast of dice"; great geometricians and scientists have studied the question, among them Pascal, Fermat, Euler, Ampère, John Bernoulli, James Bernoulli, Lagrange, Laplace, De Moivre, Poisson, and even Huygens, to mention only those of the past. Recently M. H. Laurent has published in a monograph of the collection of "Aides-mémoires" a valuable synthetic study on the subject, entitled *Théorie des jeux d'hasard*,[1] with a lofty moral application. The conclusion from all this rich harvest, the fruit of so many choice minds, is that the probability of an event due to chance can be calculated very well and distinguished very clearly from a necessary and logical probability. This probability due to chance is equal to "the ratio of the number of cases favorable to the occurrence of a given result to the total number of cases that may be possible when we are awaiting this result, provided that all the cases, favorable or not, are equally liable to happen."[2] The questions raised by games of chance such as rouge et noir, roulette, lottery drawing, dice, valet de pique, brelan, target-shooting, etc., have been almost completely solved despite their complexity, and the conclusions are

[1] One volume, 176 pages, with extensive bibliography. See also Laurent: *Traité du calcul des probabilités;* Laplace: *Théorie analytique des probabilités;* Fermat, *Correspondence avec Pascal.*

[2] Laurent, *op. cit.*, p. 6.

morally salutary. "Gambling," says M. Laurent, "can never be perfectly fair; if it is so at the moment when the players are equally rich, it ceases to be so as soon as one of them wins."

The same rigorously scientific laws introduced into the study of psychic phenomena even in the time of Buffon, who left us the excellent *Essais d'arithmétique morale*,[1] trip, in our opinion, as we have said above, over the absence of perfectly precise primary data.[2] The theory of errors and the analysis of the law of Gauss may yield some help, but this help can only be reduced to differences in a feeble, a very feeble, measure of errors systematic and errors accidental. For the famous "bell-shaped curve" even in the physical sciences is far from being accepted in its entirety in our days, as we are assured even by M. H. Poincaré. A physicist will discuss with good reason the value of a good standard and the method of observation; he will prefer a good standard, having taken all the necessary precautions to avoid the least systematic errors, while the astronomer will reply to him, "But you cannot observe in this way more than a small number of stars; the accidental errors will not vanish." Hence no mathematical precision is possible, and the decision is reached, even while discussing the question, to "take sides" and adopt arbitrarily some fixed value.

In this connexion we cannot better express our thought than by transcribing some conclusions and reflexions of M. H. Poincaré, a mathematician who has studied the logic of the subject, and who is one of the most brilliant representatives of that mathematical philosophy which is so necessary to philosophers and in which Descartes, Kant, Leibnitz, Euler, and Newton, all the most generally recognised masters in philosophy and human thought, have distinguished themselves.

"In order to undertake any calculation in probabilities," writes M. Poincaré, "and even in order to give any meaning to the cal-

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[1] Supplement to the *Histoire Naturelle*, Vol. I.

[2] See the interesting treatise of M. Bertrand, *Calcul des probabilités*, in 8vo, 1889. Also Poisson, *Recherches sur la probabilités des jugements;* and Cournot, *Exposition de la théorie des chances et des probabilités;* and Goureaud, *Thèse sur l'histoire du calcul des probabilités*, 1848.

culation, we must recognise as point of departure an hypothesis or assumption, which always implies a certain element of arbitrariness. In the choice of this assumption we must be guided by the principle of "sufficient reason." Unfortunately this principle is very vague and very elastic, and in the hasty review we have just taken we have seen it assume many different forms. The form under which we have met it most frequently is the belief in the law of continuity, a belief which it would be difficult to support by apodictic reasoning, but without which all science would be impossible. In fine, the problems to which the calculus of probabilities can be applied profitably are those in which the result is independent of the initial hypothesis, provided only that this hypothesis is in harmony with the law of continuity."[1]

IV.

If we have dwelt at such length upon the bearing of the theory of probabilities, it has been done primarily in order to bring out the scientific value of telepathic investigations, and especially in order to make some objections to those young psychologists of the new school, who, far from being masters of their initial facts, apply algebraic formulæ at cross purposes and enlarge upon simple explanations with more or less startling formulæ, which is often a proof of incompetent observation and of a lack of the critical spirit. Their only purpose seems to be to show that they can juggle wonderfully with πR^2, ϕ, θ, and all the rest of the Greek alphabet, and easily illumine the dry text, the small number of observed facts. Far, very far, from possessing the prudence of a Richet, these gentlemen juggle with cosines as with apples, forgetting nearly always that they are building up a system with facts of which the surface has scarcely been skimmed by observation.

Even in the quiet of a laboratory, with instruments of unheard-of delicacy, and with the most careful manipulation, you find difficulty in establishing a scientific psychical fact. Consider what must be thought of a testimony that comes from a distance, of a

[1] "Réflexions sur le calcul des probabilités." *Revue générale des sciences.* 1899, p. 269.

casual observation made by *X* or *Y*, whose thought is predetermined according to certain laws of education, of environment, and of a host of influences and disturbing causes! We reduce everything to a system, and we are heedlessly led to seize upon a fact not only because it impresses our mind, but because it is the only one that we can establish. And every day we criticise crude causes of error which we take for some truth or other, while to-morrow this truth becomes in its turn a truth mixed with errors, and the crude cause of errors permits us to fix upon the true probable cause. It is useless to repeat the beautiful words of Claude Bernard, that we must let facts speak for themselves, but we must even go so far as to interpret them! The causes of error swarm in our conceptions and while looking toward a distant future, a paradise of truth and of light, an epoch in which we shall perhaps finally become perfect automatons, and in which the sun will no longer send forth its life-giving rays, we yet must resign ourselves to the conviction that our "sufficient reason" changes from day to day, and that the best observations may be but demonstrations of a fact correcting crude paralogisms. I purposely exaggerate the defectiveness of our observations, of our experiences, of our methods, being the first to believe in the value of experience compared with the fancies of transcendental metaphysics.

A set of questions is sent out. What is the state of mind of the person answering; what is his power of analysis; what is his education; what his competence? Of all the mortal beings that wear out their epidermis on the hard surface of the terrestrial globe, there are few that are capable of analysing themselves, very few. Moreover, mental types vary, and many a mathematician capable of solving the most important problems in mathematical physics, is not always and necessarily a scientific observer; his own psychic condition eludes him, and outside of his own domain which he masters admirably he is far from surpassing the state of soul of any simple mortal. Daily observation furnishes us at every step with typical corroborations, so that there is no need of further insisting upon this fact. From want of education, from organic incapacity, from unequal development of different cerebral centers,

we represent only a living fraction of the complete psychic life, and it is possible to interpret a phenomenon quite differently from what it is, and that unconsciously, despite the utmost honesty in recording the fact.

Our mental life revolves in a vicious circle, the narrower because there is no possibility of an incisive analysis and because it is subject to the action of numerous influences in our sociological environment. Let us suppose that the circular of inquiry fell into the hands of some one thus environed, a soldier, a financier, a teacher of gymnastics. The problems of life do not present themselves to such a man at all, and it is usually the case that he has no notion whatever of the least datum of life nor of his own endowments. Such a man will never be capable of distinguishing a false sensation from an actual one, and especially incapable of distinguishing a true objective hallucination from a subjective hallucination, the artificial and conscious fabrication of his own excited, wearied or anæmic brain. It even happens that competent persons, psychologists and psychiatrists of high standing, are unable to distinguish the real part from the projection of intellectual images while they are themselves absent-minded or occupied with ideas that possess them. There is here a preconception that amounts to a great deal, and beliefs very easily give rise to actual hallucinations and pave the way successfully for that other erroneous belief in the reality of cerebral projections, of chimeras originated in a feverish brain, whose centers of association have ceased to perform their functions normally, and in which the fixed notion prevents a stringent, exact and logical judgment.

The most learned of preachers inevitably believes in an apparition, and he has a large number of hallucinations in comparison with a scholar who has no other religion than that of the truth; he is in psycho-physiological conditions more favorable to an erroneous grasping and interpreting of his own perceptions. We know that perception is only a sort of hallucination, and we know that the mental life is intangible to a brain sealed up in *a priori* notions and especially of an emotional nature; and accordingly I ask myself, what guaranty we can have for testimony given under condi-

tions unsuited to experiment and when the subject is in the great majority of cases necessarily incapable of interpreting to himself the variations in his psychic condition. One who has barely learned to reason a little thinks himself capable of distinguishing *ipso facto* a true hallucination from a false one. The fact no longer seems surprising when the memory is called into play and the attempt is made to confirm the time, the hour and even the minute at which the phenomenon took place. The majority of well attested telepathic hallucinations, the very great majority, have to do with cases of misfortune, cases which I shall call emotional. Now, emotion upsets the intellectual condition, and exercises a considerable influence upon the memory and the judgment notably; investigations in this direction which I have carried on but not yet published enable me to declare unqualifiedly that this is so, though this is nothing new, for it is a matter of common observation and everybody can confirm it for himself. The notion of the death of a relative, the notion of a misfortune which may happen to some one dear to us, disturbs our minds in a measure proportional to our temperament, our sympathy, our impressionableness, our education, etc., and to the nature of the strange association which has appeared as it seems so suddenly. From this emotivity arises the great difficulty in giving full credence to a fact collected in this manner.

How can one fix the hour of an event precisely under such circumstances? Messrs. Gurney, Myers, and Podmore describe for us some of their methods and their checks, but it must be admitted that they are not completely satisfactory. I have been present during the arrival of many misfortunes in the course of my life, and having a passion for taking notes on whatever I may observe, I have made this general deduction, which is not without interest, that in undertaking to determine the precise time at which an event took place the errors are greater in proportion as the phenomenon is more intimate and more complicated. I was making an investigation on the localisation of memories, a work of which I published a portion in *L'année psychologique*,[1] and I established the fact that

[1] *La localisation des souvenirs. Année Psychol. 3ième année.* Pp. 199–224.

the more remote the memory and the more closely it touches the emotional condition of the subject, the more difficult it is to localise it with precision. The fact becomes more susceptible to causes of error when it touches this very curious domain, which constitutes the profoundest depth of our souls, the marvellous. Few facts are susceptible of being presented free from chance suggestions and from all serious exaggeration, which from some vague grief, from some indigestion, some roaring in the ears, implies the sensation and even the perception of a most distinct hallucination. Inasmuch as there is no basis of criticism for the marvellous, the imagination indulges in the most fantastic caprices and the strangest sensations are acknowledged by orthodox clergymen, to whom everything is possible, even the sight of the actual configuration of an angel, the portrait of the Virgin Mary.

Let us finish the list of our objections by citing the mental state of the subjects as one of the chief sources of error. The imagination is constantly at work, even in a mediocre mind, and furnishes the daily bread for this flight toward the infinite, for this excessive persistence in a mediocre personality. Even in connexion with the most commonplace reasoning power the imagination, thanks to its little logic, persists in soaring, were it only to the height of barnyard fowls. In such a mind everything is distorted and confused, all the more because it is dealing with ill-defined memories, ill-perceived and recorded perhaps only in the imagination. I have known and studied closely a man of science and unquestioned worth, who needed, however, to keep a perpetual check upon himself in order not to credit the most insignificant and false perceptions. This scholar cultivated psychology, but fortunately he had his weakness fairly under control.

I pass over other sources of error and by no means the least. My object in referring to them is not to refute the material so carefully collected, but simply to present certain critical scientific objections to the method. The investigation yields valuable results since it is well directed, and especially when the more analysable phenomena are under consideration, such as have a real existence and constitute a part of our mental life; but it becomes liable to

criticism when it takes up a subject so indefinite in itself and so far, speaking *a priori*, from our normal intellectual condition.

V.

We have given especial attention to this question, and during the six years that we have been reading the results of the inquiries of Messrs. Gurney, Myers, and Podmore, we too have been collecting a large number of observations which we shall briefly state. The conclusion of our investigations does not agree with the results of the *Society for Psychical Research*, and we shall give later on the explanation of these contradictions in the Society's conclusions, which are due, in our opinion, to ignorance of the condition of the subjects, of their natures, their education, etc., care being but rarely taken to secure truly scientific observations. Showing our facts such as they are, we are very far from assuming that truth is on our side; it is on neither side, I venture to say, for it is still in dispute. In science, as in everything else, it is necessary to compare facts, stating as minutely as possible, the conditions under which they are obtained and leaving the final criticism to the future. Far from denying the existence of a fact that seems incontrovertible even to the very best scientists, and seems the more so because it is not fundamentally impossible, we shall limit ourselves to publishing our observations. I am convinced with M. Richet, that we must not do like the mandarins, and that in science, as well as in life, our motto should always be: Face the future. But before taking a step, that step should be measured. We shall let the facts speak for us.

I now come to the second part of the problem: the apparition of persons under any sensorial excitement, undergoing some great crisis, or who are at the point of death, to some other person, a friend or a relative. As for the other part: the transmission of thought or feeling from one mind to another without the intermediary of the organs of sensation, the affirmation without being categoric has more probability. It must, however, be made very precise, and I believe that it depends largely upon psychic conditions, easily apprehended, without having recourse to transmission

TABLE I.

ORDER	NAME	SEX	AGE	PROFESSION	EDUCATION	NO. OF DETERMINATIONS MADE	NO. OF CASES IN WHICH THE SUBJECT WAS CONVINCED OF THE REALITY OF THE HALLUCINATIONS, AND OF THE COINCIDENCE	NO. OF CASES CONFIRMED EXACTLY	NO. OF ERRORS PROVEN	PERCENTAGE OF CASES CONFIRMED	NATURE OF THE HALLUCINATION				TIME COVERED BY OBSERVATIONS	REMARKS
											aud.	vis.	tac.	olf.	years	
I	A	Fem.	50	None	Elementary	112	109	6	103	5.5	35	70	5	2	9	Very pious and orthodox
II	B	"	30	"	Average	47	46	1	45	2.18	19	26	1	1	9	" " " "
III	C	"	70	Agric.	"	128	121	5	116	4.13	39	84	0	5	9	" " " "
IV	D	"	25	Teacher	University	21	21	0	21	0.	1	19	0	1	2	Free thinker, not given to analysis
V	E	"	34	None	Average	8	8	1	7	12.5	0	8	0	0	8	Very orthodox
VI	F	"	27	"	Elementary	31	31	0	31	0.	1	25	0	5	5	No fixed opinion
VII	G	"	25	"	"	14	13	0	13	0.	2	7	4	1	1	No clear opinion
VIII	J	"	23	Teacher	University	172	167	4	163	2.39	35	135	1	1	5	" " " , on the whole orthodox
IX	K	"	26	None	"	27	27	0	27	0.	0	27	0	0	8	Orthodox
X	L	"	60	"	Average	12	11	0	11	0.	0	12	0	0	9	Fervent orthodox Christian
XI	M	"	36	"	"	4	4	0	4	0.	4	0	0	0	1	Free thinker
XII	N	"	20	Domestic	Elementary	3	3	0	3	0.	0	3	0	0	1	Bigoted orthodox
XIII	O	"	56	None	None	78	78	2	76	2.05	16	30	1	31	9	Orthodox; admirable intelligence
XIV	P	Male	48	Teacher	University	26	26	1	25	3.46	4	20	1	1	3	" ; keen intelligence
XV	Q	"	61	Landlord	"	14	12	0	12	0.	0	14	0	0	6	Free thinker
XVI	R	"	31	Teacher	"	7	7	0	7	0.	7	0	0	0	½	Without clear ideas
XVII	S	"	28	Official	Average	100	93	8	85	8.6	17	80	0	3	2	Bigoted orthodox; fantastic imagination
XVIII	T	"	26	Publicist	"	81	81	10	71	12.2	9	71	0	1	3	Metaphysical mind
XIX	U	"	30	Teacher	University	7	6	0	6	0.	0	7	0	0	2	Free thinker; logical
XX	V	"	70	Agric.	Average	2	2	0	2	0.	0	2	0	0	4	Good reasoning powers
XXI	W	"	35	Teacher	"	117	115	2	113	1.74	9	100	5	3	7	Melancholy, dreamer, orthodox but critical
Total 21		13f. 8m.	38.58 (av.)			1011	981	40	941	5.47 (av.)	198	740	18	55	5. (av.)	

from a distance through the ether. Investigations made on this topic, to which we shall refer at some other time, have convinced us that the psychological side of the question is generally too much neglected, due to a readiness to enter at once upon the field of the marvellous, now supposed to have become knowable, the veil of Isis being lifted.

My observations were made upon a limited number of subjects, but I venture to say that they have a certain value because of this very fact. My subjects are distributed as follows: 21 subjects of Roumanian origin, 8 men and 13 women; 11 subjects of French origin, 8 men and 3 women. Total, 32 persons. These persons I followed up very closely, and living their common life with most of them, I was able to keep a check upon the facts, to make the record of the observation, and to observe with my own eyes. Most of these persons were far from knowing anything of modern psychological studies or anything that could influence their mode of thought. None of these subjects was aware of my investigations, except two of my colleagues who finally, after I had made a great many observations, began to suspect the attention I was giving to their hallucinations. None of the facts observed has been accepted upon hearsay. Those will form a category by themselves, and we shall not enter into details regarding it, especially since the results agree.

Table I., on the opposite page, gives a complete account of our experiments; all the details have been noted with a purpose, each having in our estimation a special value.

TABLE II.

Number of subjects	21, women 13, men 8.
Number of determinations	1011.
Number of coincidences claimed by the subjects	981.
Number of exact coincidences	40.
Number of errors proven	941.
Number of true cases reported, per cent	5.47.
Number of visual hallucinations	740.
Number of auditory hallucinations	198.
Number of tactile hallucinations	18.
Number of olfactory hallucinations	55.

TABLE III.

ORDER	NAME	SEX	AGE	PROFESSION	EDUCATION	NUMBER OF DETERMINATIONS	NUMBER OF TIMES SUBJECT WAS CONVINCED OF COINCIDENCE	NUMBER OF EXACT COINCIDENCES	NUMBER OF CASES AT SECOND HAND	NUMBER OF ERRORS FOUND	PER CENT. OF TRUE CASES	NATURE OF THE HALLUCINATION				TIME COVERED BY THE OBSERVATIONS	REMARKS
												aud.	vis.	tac.	olf.		
I	A′	Fem.	45	None	Average	36	33	1	0	32	3.3	14	20	2	0	3 yrs. 9 m.	No fixed opinion; very suggestible
II	B′	"	36	Teacher	"	21	19	0	5	19	0.	3	15	1	2	4 "	Fantastic imagination; spinster
III	C′	"	29	Artist	"	43	43	3	8	40	6.97	12	24	5	2	7 " 2 "	No general ideas; commonplace view of life
IV	D′	"	47	Publicist	University	19	18	0	0	18	0.	1	18	0	0	4 " 4 "	Distinct type; loves marvels; neurasthenic
V	E′	"	32	Landlord	Average	26	26	2	7	24	7.69	3	19	1	3	6 "	Orthodox; inclined to mysticism
VI	F′	Male	26	Student	University	81	79	1	10	78	1.26	26	50	3	2	5 " 1 "	Free-thinker; metaphysician; dreamer
VII	G′	"	28	Teacher	"	35	30	0	8	30	0.	15	19	1	0	3 " 9 "	Critical yet mystical; few ideas
VIII	H′	"	32	Overseer	Average	24	23	0	2	23	0.	3	12	7	2	2 " 11 "	Keen intelligence, but no dominant idea
IX	I′	"	49	Agricul.	Elementary	36	35	1	11	34	2.85	4	27	0	5	4 " 6 "	Orthodox; leaning toward occultism
X	J′	"	60	Landlord	"	8	8	0	1	8	0.	0	8	0	0	4 "	Confused mind; no data about life and nature
XI	K′	"	37	Literateur	University	9	7	0	0	7	0.	5	2	0	2	3 "	No scientific culture; dreamer
XII	L′	"	31	"	"	15	13	0	2	13	0.	6	8	1	0	3 "	Fatalistic; free-thinker
XIII	M′	"	39	Publicist	"	10	10	0	2	10	0.	8	0	1	1	3 " 7 "	Good head; a thinker
13		fem. 5 male 8	37.66 (av.)			363	344	8	56	336	4.36 (av.)	100	222	22	19	4 " 3 " average	

Table II. sums up the chief conclusions and contains the averages of the results. The age of these 21 subjects varies from 23 to 70 years, averaging for the women 37 years, for the men 41 years.

It must be added that the occupations of the subjects were distributed as follows: 9 women without occupation, 1 agriculturist, 2 teachers, 1 domestic; 4 men were teachers, 1 officer, 1 publicist, 1 agriculturist, 1 landlord. As for their education, it stood as follows: 4 elementary education, 9 moderate education, 7 university education, 1 lacking education.

Table III. gives account of observations made upon French subjects, and in Table IV. the general results are summed up.

The general averages contained in Table IV. harmonise with those of Table II., although it deals with subjects belonging to a different environment and having a totally different training and education. The number and the nature of the sensorial hallucinations corresponds to the total number of determinations.

TABLE IV.

Number of subjects	13; females 5, males 8
Number of determinations	363
Number of coincidences alleged by the subjects	344
Number of coincidences established	8
Number of errors demonstrated	336
Percentage of true cases	4.36
Number of visual hallucinations	222
Number of auditory hallucinations	100
Number of tactile hallucinations	22
Number of olfactory hallucinations	19

The coefficient of percentage of true cases becomes still more inconsiderable if it is based on the total number of cases, instead of taking the average: 1.68 instead of 4.36. Of the true hallucinations, those in which there was any sort of coincidence, 5 were visual, 2 auditory, 1 tactile and 1 olfactory; 3 before and the remainder after the actual occurrence.

The total number of our observations was 1374, made upon 34 subjects, 1325 of them being presented by the subjects themselves as affirmative, while 48 were established as coincidences occurring

within from 6 to 60 hours of the actual event, and 1277 cases established as errors. The visual hallucinations numbered 962, and the others in the order of their determination: auditory, 298; olfactory, 74; tactile, 40. The coefficient of percentage of true cases yields a general average of 5.10, but if it is based on the total number of cases it is only 2.25.

VI.

Let us recall in a few words the manner in which we have collected this evidence; we insist on the value of the facts that we are publishing, and consequently, as in any biologic science whatever, that the method is the first consideration that ought to receive the attention of the experimenter. In order to make ourselves better understood, we shall take as an example case XIII., Table I., Madame N., without profession, aged 56 years.

We know Mme. N. intimately; much of our life was spent near her. During vacations we were in the country, and I spent long days beside her, working at my desk, and she sat embroidering or spinning huge distaffs of wool. From time to time she interrupted her work, we talked together, and she told me her thoughts and the ideas she was following while spinning. At times she stopped suddenly, the spindle fell from her belt, and sadly, with rigid features, she explained to me in figurative language that she had had a distinct vision of her husband, sick, suffering, and sometimes dying. It seems to me that I still see her as I write these lines, melancholy, analysing with remarkable intelligence her own mental condition, announcing to me an inevitable misfortune; then calm and collected at her spinning again, after sighing deeply a few times, and never forgetting to make the sign of the cross. While sympathising with her distress, the psychologist was always ready to note the case; one more piece of evidence, and after having written down the words almost from dictation, and noted the hour, the attitude, and my own impression, I carefully sought to ascertain whether there had been any connexion between the subject and the object of the hallucination.

And curiously enough, the testimony of the person that was

the object of the hallucination was inadequate, and whenever conversation turned upon it, or he was questioned by the person that had experienced the hallucination, the two nearly always came to an agreement, were it only with the corroboration that he had felt a deep moral suffering. The psychologic life of man is a tissue of lies, of illusions, of false perceptions, of beliefs, ideas and judgments seldom co-ordinated upon any fixed, well defined plan. Suggestions are readily received, and sometimes, if not always, under the influence of a tender word, of an emotion delicately whispered, the memory becomes blunted, the judgment more superficial, and the little analysis of which one is capable is lost. Very frequently the testimony of persons, whether learned or totally lacking academic education, was wholly inadequate to substantiate a fact. In the majority of cases self-analysis is poor, and then they forget so quickly, especially when they are not interested, as we psychologists are, in the mechanism of their feelings and actions. So then, after several disappointing corroborations, I always examined the social and psychic conditions of the persons under consideration.

We possess 78 telepathic hallucinations of Mme. N., which we witnessed or which were reported to us. In all of them Mme. N. had believed with absolute confidence, and those about her, fairly educated men, regarded her affirmations as veracious. Of course, as time went on the hallucination assumed a greater degree of verity, and was finally portrayed with a legendary halo that seemed, however, strictly correct to those about her, people acting in good faith and capable of testifying with their hands upon the cross, that every word, every detail of the story told by Mme. N. was correct. And yet out of the 78 hallucinations, 76 errors were proven, and only in 2 cases was there any agreement whatever, and the conditions and the cases as we were able to establish them are as follows:

First: The husband of Mme. N. had to go on important business to a town 25 kilometers distant from his home in the country, and he was obliged to employ the services of a drunken coachman. Mme. N. was very uneasy, but as the business was important, she consented that the man should drive the carriage, after she had

roundly lectured him. It was a day near the end of March and we were in the country with Mme. N. As was customary she took her distaff, arranged the winder for a servant, and began to spin quite happily. The wind was whistling boisterously outside, and, as it had rained for several days before, there had been tremendous inundations in the country. M. N., her husband, had to ford a considerable river on this journey. Three hours had passed since his departure ; Mme. N. with tears in her eyes told me that she seemed to hear the voice of her husband groaning. The sighing of the wind seemed to her to be the cause of this queer sensation. Late at night M. N. was brought to the house, half-fainting, with a fracture of the right leg. As he was about to cross the river on his return, after it had begun to grow dark, the driver having become drunk again in the town, the horses would not go into the water but ran away with the carriage across the fields. M. N. tried to jump, but his foot was caught in the wheel and he had fallen to the ground nearly dead. This happened toward 8 o'clock in the evening, and Mme. N. had had her hallucination at about 11:36 in the forenoon. So there had been a difference of about 8 hours between the hallucination and the reality, and strangely enough the hallucination preceded the unfortunate occurrence.

Second: I now give the second case in connexion with Mme. N., which I had the good fortune to observe under the following conditions: I was with Mme. N. at the city of B. and we were walking peacefully in a little garden of fruit trees toward the evening of a summer day. We were talking of her daughter, Mme. M., who was in the country with her husband, and whom at the time of her last meeting she had found somewhat ill, weak, and sad. In the city where we were there was an epidemic of typhoid fever, and already a considerable number of deaths had been reported. That evening at table Mme. N. told us that at the moment when she was about to eat her soup she had experienced a distinct vision of her daughter at the point of death, wrapped in white cloths and just about to render up her spirit. Two days later we received a letter from the husband of the daughter, announcing in fact that the daughter was seriously ill with typhoid fever, and that the phy-

sicians who had seen her some hours before the letter was mailed (3 hours, as we were informed) and who had watched her the whole morning three days before, from 3 till 5, gave no assurances of her recovery. Here was a vague coincidence, for the hallucination had occurred 15 hours after the existence of the typhoid crisis this time. Yet this fact did not prevent everybody from citing this case as verified. In this sort of hallucinations the marvellous seizes so promptly upon human thought that one forgets quickly the conditions under which it took place and even neglects to note whether it took place before or after the event, and whether 10 hours or 10 days after.

If these two cases had been collected by the usual method of psychological investigation, attention would certainly have been called to them, and I know even men with a university education who would have noted them in their memorandum as verified facts. Witnesses were not wanting to confirm the reality of the coincidence. Officials, magistrates, peasants, and university men are always ready to agree on anything that involves the marvellous. Never undertake to convince these sincere and honest witnesses of the truth of the facts, for you will not succeed, and besides you will lose the chance of observing the genesis of legends and especially of the senseless logic which pervades the judgments and the feelings of men.

For my part, this coincidence appears explicable on a purely psychologic hypothesis, but I will not insist upon it here, for I shall take it up again at the close. There is a considerable sub-conscious process which forces the subject to direct his thought upon the health of the one who is absent, and by an easily understood process the apprehension of misfortune or of death quickly insinuates itself, and all the more if it is supported by critical situations of which it may have knowledge, such as the critical condition of the coachman and the inundations in the first case, and the epidemic of typhoid fever and the knowledge of the ailing condition of Mme. N.'s daughter in the second case.

VII.

It would be impossible to give all my observations, and to report the details of my evidence would require the whole of a volume with at least the dimensions of the investigations of the London Society for Psychical Research. We shall be satisfied with a sketch of the general results.

We have lived in close contact with a great part of our subjects both French and Roumanian; they are friends, relatives, or people with whom we sustained most cordial relations. I emphasise this fact, for I believe that an off-hand observation without any intimate knowledge of the person observed is altogether without value. Only on this condition of having a thorough knowledge of the person who relates his telepathic hallucinations or his pathological romance can the observation be regarded as scientific. In psychological investigations, and what is still more lamentable in mental and nervous pathology, this fact is unfortunately not taken into account. In this connexion I cannot neglect to express my admiration for my master, P. Janet, on account of the emphasis which he lays, and always recommends others to lay, upon the prolonged and patient study of a subject whether normal or pathological. The observations that I have had occasion to make on the subject of telepathy have taught me the value of this thorough verification, and when I read over my notes on the condition of my subjects and their private life I believe that I can succeed, thanks to them, in explaining the genesis and the meaning of their telepathic sensorial hallucinations.

Living beside them, aided by that important biological factor, chance, throughout the nine years during which I have pursued my observations and investigations in telepathy, I have been able on the one hand to grasp the hallucination in its entirety, and on the other to test and verify its basis of truth or error. Often I have been able in the case of my French friends to catch their hallucinations in the midst of an evening of labor, upon a promenade, or during a visit to the laboratory. Afterwards I endeavored to test the

fact by means of letters or by personal verification. Here I ought to confess that for certain cases of my French subjects the verification was made indirectly and to a certain extent under the direction of the subject, when we were dealing with persons whom we did not know at all and who lived part of the time in the colonies and part in foreign countries, but during the most of their cases lived in Paris or at least in France.

The observations upon French subjects have a capital importance for us, for they demonstrate that the telepathic hallucinations collected by us do not depend exclusively upon any influence of environment or of country. They prove once more that the psychic mechanism of man is about the same everywhere, and that the similarity is the greater when we approach the questions of transcendental metaphysics and the burning questions of death and immortality. I have had the opportunity of making observations in this line upon 3 Germans, 2 Italians, and 4 Spaniards, and while I was unable to apply the rigorous tests which I usually employ, I was enabled to confirm the truth of the paradox which we propounded a few lines above. The apprehension of misfortune and of death, and in general whatever borders on the miraculous, gains credence rapidly, and even choice intellects accept a commonplace narrative as gospel truth.

The acquaintance with the subject is important and even necessary, for in the first place it places checks at our disposal, and in the second place it puts us in the way of explaining the telepathic hallucinations.

As for the matter of proper checks, there is the great difficulty of connexion and relation which only psychologic common sense and the tact of the experimenter can evade or overcome. It is necessary in the first place to take care that the checks be applied promptly instead of allowing long weeks to pass between the steps of verification, for the subject and the object usually end by agreeing in their statements. Differences of days become hours, and hours scarcely lasted minutes! And this is true for all classes of subjects, for there is an interesting nostalgia to be studied in this love of the marvellous in the multitude. Therefore we must have

a system of checks applied promptly, skilfully, and with the greatest prudence. While self-esteem is in general ill-balanced, certainly among women, it becomes more irritable and more irascible in connexion with questions of the marvellous. A blind credulity meets a story told by any gentleman or lady whatever, provided it be well told and have something of the mysterious in its content!

The hallucinations observed by us have been sensorially of four varieties: visual, auditory, tactile, and olfactory; the most numerous, if only table I. be examined, are the visual, 740, and the others follow in their order: auditory hallucinations, 198; olfactory, 55; and lastly tactile, 18. The clearest of all and accompanied by the most details in their content were, in the opinion of all the subjects, the visual hallucinations, and after them the auditory. The person was seen in agony, with a sad countenance, a wound in the hand, his heart pierced by assassins, his legs broken, etc., or perhaps asking for help: he was seen speaking but the words not heard,—an interesting hallucination which so far as we know has not been pointed out by any one before. Among the auditory hallucinations we have verified: voices calling for help, incoherent words barely whispered, cries, counsels, words of tenderness uttered mournfully, musical airs generally in a melancholy strain, etc.

The olfactory telepathic hallucinations consist of olfactory sensations of gunpowder, the odor of the person, the odor of a corpse, an odor characteristic of the house in which the subject was, a favorite perfume, the taste of ether and the taste of chloroform, etc., associated in many cases with other hallucinations, yet having nevertheless this predominant feature. Of the 55 cases collected in Table I. we found 39 pure olfactory hallucinations which were not associated with any other sensorial telepathic hallucination. Gustatory hallucinations are rare: we have met them in 2 cases in 2 French subjects who are not represented in the tables, and which were accompanied by a number of other sensations. The first of the persons in question had the sensation of having a drop of poison on his tongue, the same poison (morphine) that the person at a distance, who was at the point of death, had taken in order to

express by the drop of poison his hopeless condition. In the second case the subject experienced the sensation of thirst, accompanied by the sight of blood. The tactile hallucinations generally consisted of the sensation of touch, of cold sensations in the back, of chills, of kisses, a slight passing breeze, something floating which warned the subject of the existence of some peril, the pressure of a hand, the feeling that some one is looking at your back, or is seizing you by the shoulders, etc.

Tables V., VI., VII., and VIII. contain the classification in the order of their numerical importance of all these different sensations, which are interesting enough to be catalogued.

TABLE V.

SENSUAL TELEPATHIC HALLUCINATIONS.

QUALITY AND NATURE OF THE HALLUCINATION.	NUMBER OF CASES OF THIS HALLUCINATION FROM TABLE I.
I. Persons seen in agony in various forms	178
II. Persons seen with sad and rigid features	4
III. Persons seen walking, sad and pensive	10
IV. Persons seen at distance, sad and questioning look, face as of one dying	69
V. Persons seen at distance, with wound on hand, heart, or face	100
VI. Persons assassinated	21
VII. Persons seen crushed by a wagon, drowned, killed, strangled, etc.	160
VIII. Persons seen asking help with gestures, and struggling	78
IX. Persons seen speaking, but the words not heard	29
X. The head only seen, detached and shadowy, or some other organ detached but in a significant attitude	10
XI. The persons seen dead in a coffin	81

In this table we have only summed up the general lines, omitting all the details, each of these 11 classes that we have made up having numerous subdivisions. It is to be noticed that the most numerous cases belong to the state of agony (178) in its manifold forms; the least numerous are the telepathic hallucinations in

which only a detached head was seen like a shadow against a bright background, or merely a separate organ in a significant attitude. The sensations of class IX., when the object was seen speaking, and the sense of the words was understood by the movement of the lips and of the mouth, without having the sound of the words, were relatively numerous: 29. The subject claims that he hears nothing: "I know that he is threatened by a misfortune," said one of them to me, "for the words that he pronounced inform me of his condition." In another case a subject remarked that he saw a mute speaking.

The same observations apply to the auditory, tactile and other telepathic hallucinations; our groups represent types and each contains classes more or less similar.

TABLE VI.

AUDITORY TELEPATHIC HALLUCINATIONS.

NATURE AND QUALITY OF THE HALLUCINATION	NUMBER OF CASES IN TABLE I.
I. Voice heard asking help under strange conditions ...	30
II. Incoherent words stammered by one dying.....	17
III. Words barely whispered in the ear, suggesting a being in distress	25
IV. Cries of terror and despair.....	29
V. Sweet and tender words spoken in a melancholy tone	6
VI. Music and song in sad strain.....	27
VII. Tender reproaches in a familiar but altered voice...	9
VIII. Vague sounds; strange voices.....	19
IX. Sighs accompanied by words and groans.....	11
X. Intimate and tender memories roused by beloved voice of one absent, mingled with reproaches.....	12
XI. Counsels on conduct of life given by those dying....	7
XII. Spasms, convulsions, sufferings, painful dreams, sad	6

It is to be observed that the most numerous hallucinations are those of classes I., III., IV. and VI.: words asking help, words barely whispered, song heard in melancholy strain, cries of despair, etc., sensations which suggest in a general way the *tonus affectif*, as the Germans would say. It is to be noted that in the two classes

of cases we find the same relative proportion of the classes of hallucinations.

TABLE VII.

HALLUCINATIONS BOTH TACTILE AND TACTILE-MUSCULAR.

NATURE AND QUALITY OF THE HALLUCINATION	NUMBER OF CASES IN TABLE I.
I. Kisses and customary caresses	2
II. A light wind passing	1
III. A floating object, warning the subject of a misfortune; vague and indescribable condition	2
IV. Familiar pressure of the hand	1
V. Familiar gesture	5
VI. Feeling that some one is looking at you from behind and touching you	1
VII. Sensation as of some one seizing you by the arm	4
VIII. Sensation of heat, cold, effort, oppression, etc	2

The most numerous are the hallucinations consisting of a familiar gesture, and those of class VII., those of contact or of some one seizing you by the arm.

TABLE VIII.

OLFACTORY TELEPATHIC HALLUCINATIONS.

NATURE AND QUALITY OF THE HALLUCINATION	NUMBER OF CASES IN TABLE I.
I. The peculiar odor of the person, suggesting distress, agony, suffering	21
II. The smell of a church; chrysanthemums and funeral flowers	9
III. The smell of a corpse; of something decaying, of blood	5
IV. Odor familiar to the subject	4
V. Favorite perfume, artificial odor	3
VI. Taste of drugs, ether, chloroform, medicines	8
VII. Indescribable perfumes mingled, suggesting impending grief and misfortune	5

I reserve the right to publish sometime all these curious records of telepathic hallucinations. The regret that I cannot bring

them out now comes back in treating of the olfactory hallucinations. Here there is an interesting domain to be made known, especially in regard to what the subjects call the "personal odor." The hallucination coming in the olfactory form suggests the reality of the person. "It is as if he existed," said one subject to me. "He is beside me, I perceive him by the peculiar odor emitted." "Why is this perfume of iris present in the air, with that sweet fragrance that Mme. X. exhales?" said another. "Every breath makes me think of her; by the perfume, and it is her favorite perfume, it is surely she." And this odor or some other fills the atmosphere in which the subject experiences the hallucination, suggesting a peculiar psychic condition of the distant or absent person, mostly a state of suffering, of sorrow, of a painful situation. Of what this peculiar personal odor consists is not to be discussed here; let us be satisfied to say that it exists and that it plays an important part in social life and the realm of the senses.

These hallucinations are mostly accompanied by other associated hallucinations; we have taken into account only the initial impact, the first hallucination, which suggested a whole series of mental activities; in other words, the sensation which had evoked any mental effort whatever. There were, very rarely, different sensorial hallucinations occurring at the same time: an auditory hallucination concurring with a visual one.

Our observations corroborate the predominance of visual hallucinations, a fact moreover clearly brought out by the inquiries of the London Society for Psychical Research.[1] The explanation given by Messrs. Gurney, Myers and Podmore as the true cause of this predominance, emphasising the distance covered by the excitation between the higher ideational centers and the sensorial centers, is a mere hypothesis that has no other quality than its ingenuity. In our opinion the cause is simply due to the fact that most men are dependent on the sense of sight, and that hallucinations are included only within the compass of subjective intellectual phenomena.

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[1] *Op. cit.*, p. 222 and *passim*.

Of these 40 cases in which there was a real agreement, there were 21 visual hallucinations, 10 auditory, 4 tactile, and 5 olfactory, and the time covered by them varied between 6 and 60 hours; and 19 took place before the actual occurrence, and 21 after the existence of the fact that might have occasioned the telepathic hallucination. Let us repeat once more that the predominance is on the side of the visual hallucinations.

[TO BE CONCLUDED.]

N. VASCHIDE.

PARIS.

BOOK REVIEWS.

LA MÉTHODE DANS LES SCIENCES EXPÉRIMENTALES. Par *Louis Favre*. Paris: Schleicher Frères. 1898. Pages, xxv, 470. Price, 5 francs.

L'ORGANISATION DE LA SCIENCE. Cours libre professé a La Sorbonne. Par *Louis Favre*. Paris: Schleicher Frères. 1900. Pages, ix, 409.

From the prospectus and the general spirit and contents of its first two volumes, the present series of works devoted to the critical discussion and systematic exposition of the methods which obtain in the experimental sciences, bids fair to be a sound and serviceable contribution to semi-philosophical literature. Volumes have been announced on methods in agronomy, in sociology, psychology, and economy, in zoölogy, botany, and mineralogy, a work on the elements of physics, and another on the philosophy of the sciences. It has been the intention of the editor of the series, M. Louis Favre, to contribute to the advancement of the experimental sciences by placing at the disposal of investigators, particularly young investigators, the methods which are absolutely requisite for progress. In any discovered fact there are two features to be observed, the discovered fact itself, which belongs to the past of science, and the *method* which serves for its discovery, which forms part of the future of science. The fact passes away; the fact is the fruit which has but the life of a day. But the method employed to produce the fruit, the method which has caused the seeds of truth to bear the fruit,—this is the permanent product, which abides forever and which claims the highest and noblest attention of the man of science. Now, there are two modes of expounding science, that which is devoted principally to the exposition of the discovered facts, which is naturally the method of elementary instruction, and that which is devoted principally to expounding the methods which have enabled us in the past and will also enable us in the future, to discover facts and relations of facts, and which naturally belongs to advanced instruction. It is this second mode of exposition that is to be employed exclusively in the series of works here announced, which will treat of every experimental science now existing or ever destined to take rank as such, not excluding the industrial and æsthetic arts.

The single facts of nature, according to M. Favre, have not a distinctive and particular essence of their own; each, on the contrary, has its necessary and char-

acteristic relations and resemblances with other facts. Facts are, if we so wish to phrase it, of different species, but these different species admit of classification into genera, embracing related species, and frequently even into still more extensive groups. Now, to show how in any one given case some stubborn fact has been attacked, to show by what methods the difficulties which it presented have been conquered, is tantamount to showing how it is possible, by slight modifications of the procedure employed in the original case, to conquer similar difficulties belonging to the same genus but differing only with regard to species. It is to be shown, in the case of each method, what is essential, also what is general, what admits of universal application. The mechanism of each method is to be dissected, so that the reader may clearly see for what purpose each of the principal parts is designed; and, after seeing for what purpose it has been employed, to be able to determine for what purpose it may be employed in the future. In science, in the combat against ignorance and error, a method is not a tool which wears out or loses its edge by usage; on the contrary, it grows constantly more fit for its purpose, and increases in keenness the more it is employed, always acquiring new strength from every new usage.

In the first volume of the series, entitled *Method in the Experimental Sciences*, M. Favre has considered the nature of hypotheses, explanation by analogy, explanation by comparison, cause and effect, experiments, instruments, etc. He has some good remarks to make on classical errors, on the impossible problems of science, scientific prejudices, scientific paganism and heredity, on the power of words, etc. It would lead us too far to enter exhaustively into this theory of explanation. It may be indicated briefly only. A proposition, he says, explains a fact when, starting from the data contained in the proposition, the fact can be rigorously deduced from it. Conditions (the presence and mutual action of determinate quantities of energy, matter, and ether) explain a fact when, starting from the conditions as given, the fact can be rigorously deduced. The ideal type of scientific explanation is dynamic explanation, which, having two angular components given, enables us to deduce a resultant. The most general form of the problem of explanation in the experimental sciences is, having given a phenomenon as result, to determine the conditions which produced it. The composition of forces, motions, etc., is the general ideal type. The form in which every scientific explanation (hypothesis or explanatory theory) should be announced is the following: 'Things (as actually known and studied) take place *as if* such and such conditions were the cause of the phenomena observed." Thus, "things take place in nature *as if* there were *energy*, *substance* (matter and ether), and *laws* for regulating the relations between energy and substance." "Things take place *as if* 'centrifugal force' really existed." "Things take place *as if* 'imaginary quantities' existed." "Things take place," to revert to some antiquated views, "*as if* nature had a horror of a vacuum, *as if* caloric existed," etc., etc. While one may have criticisms to make of the shadowy and dualistic form which the theory of explana-

tion may sometimes assume on this doctrine, one must certainly say that the remarks of M. Favre are in many instances elucidative and that they agree in the main with the current views of the philosophy of science.

In his second volume, M. Favre outlines for the various experimental sciences (applied mechanics, physics, chemistry, biology, etc.) the plan of organisation which he deems desirable, by distinguishing in the case of each science, first the organisation of its component parts, and secondly the organisation of labor of its workers. He lays much stress upon the importance of adopting for each science commonly accepted definitions, common classifications, nomenclatures, etc., and for physics he has especially given what he deems to be a convenient and logical plan for the study of that science. *μ.*

A STUDENT'S HISTORY OF PHILOSOPHY. By *Arthur Kenyon Rogers, Ph. D.*, Professor of Philosophy in Butler College. New York: The Macmillan Company. 1901. Pages, xi, 519. Price, $2.00.

Of the making of histories of philosophy there seems to be no end, but the present attempt of Dr. Rogers, from its readableness and simplicity, is deserving of a cordial reception. His method has been selective, and it has been his aim to attain economy and clearness of presentation as distinguished from detailed comprehensiveness, at least so far as that has been possible, "without losing sight of the real meaning of philosophical problems." In summing up the thoughts of individual philosophers, he has neglected the minor points of their teachings, and primarily endeavored to emphasise the "spirit" in which they philosophise and the main problems in connexion with which they have made their impression on the development of human thought. Minor names have been passed over. The Mediæval period, while admitted to be intrinsically of great importance, is awarded only 60 pages out of the 500 and more that constitute the volume. A book with this selective purpose Dr. Rogers believes has its place alongside such a volume as Weber's, although he seems to forget that the actual reading space which his work occupies is nearly, if not exactly, as great as that of Weber's. The bulk of the volume has been increased slightly by verbatim quotations from the great philosophical writers, particularly in places where the literary interest supplements the philosophical. This has been especially the case with the Greek philosophers, and has undoubtedly helped to swell the volume. This has its good side, however, and the author hopes by it to arouse "an interest in the masterpieces of philosophy at first hand," a hope which we sincerely trust will be fulfilled. Greek philosophy to Philo occupies 181 pages. The Religious Period, so called, occupies 27 pages; modern philosophy, 250 pages; philosophy since Hegel receives brief, one might even say composite, treatment, but is none the less distinct and intelligible on that account. Recent philosophy is indicated merely in its general tendencies.

The work is unhampered by unnecessary footnotes and references, though there are good general bibliographies; and while the space devoted to some phi-

losophers may to many minds seem disproportionate, Dr. Rogers's exposition of the broad outlines of development of philosophic thought is, upon the whole, continuous, organic, and symmetrical. The student cannot fail to carry away from the perusal of this work, which he will find a pleasant task, a distinct and lasting impression of the main features and the general trend of the growth of the great ideas that have moulded human thought and ofttimes human destiny.

T. J. McC.

AN INTRODUCTION TO PSYCHOLOGY. By *Mary Whiton Calkins*, Professor of Philosophy and Psychology in Wellesley College. New York: The Macmillan Company. 1901. Pages, xv, 509. Price, $4.00.

The present introduction to psychology by Professor Calkins is intended primarily for the convenience of her students at Wellesley College. "The book is written in the conviction that psychology should study consciousness, both as a series of complex mental processes, or ideas, and as a relation of conscious selves to each other. It is hoped, however, that the points of view have been so carefully distinguished that the book may be useful to readers who reject one or other of these underlying conceptions." The two fundamental theories of the book: (1) the existence of elements of consciousness which are neither sensational nor affective, and (2) the conception of psychology as a science of related selves, are acknowledged by the author as essentially identical with the teachings of Professor James and Professor Münsterberg, from which two psychologists much of the material and the inspiration of the work has been derived. The book is intended for students beginning the study of psychology, although the references to psychological literature and "the formulations of conflicting theories" are sufficient to enable the student to enter independently on a thorough and continuous study of introspective psychology. In the appendix considerable matter has been added on special subjects for the use of more advanced students. The greater part of the book is devoted to the study of normal introspective psychology or the study of the normal civilised and adult consciousness,—on the theory that a thorough analysis of the "facts of one's own normal experience is the necessary introduction both to the introspective study of one's own abnormal experience and to the comparative study of the consciousness of other human beings." Miss Calkins's method and trend of treatment may be gathered from the following titles selected from her chapter headings: Structural Elements of Consciousness; Auditory Sensations; Sensations of Taste and of Smell; Sensations of Pressure, of Pain and of Temperature; Sensations from Internal Excitation and the Consciousness of Motion; The Consciousness of Extensity; Sensational Element and Sensation; Attributive Elements of Consciousness; Relational Elements of Consciousness; Attention; Concrete Conscious Experiences; Fusion and Association; Perception; Imagination; Memory; Thought: Generalisation; Thought: Judgment and Reasoning; Recognition; Emotion; Volition and Belief; Will and Faith; Typical Personal Rela-

tions; The Religious Consciousness; The Social Consciousness; Divisions of Psychology; The Psychology of the Animal Consciousness; The Psychology of the Child's Consciousness; Abnormal Conscious States of Persons in Health; The History of Psychological Systems.

The style of the book is simple; the material presented in it, rich; and the treatment, competent. It will be a very serviceable work to many students.

LAMARCK THE FOUNDER OF EVOLUTION. HIS LIFE AND WORK. With Translations of his Writings on Organic Evolution. By *Alpheus S. Packard*, M. D., LL. D., Professor of Zoölogy and Geology in Brown University. New York: Longmans, Green & Co. 1901. Pages, xii, 451.

It is long since we have met so interesting a work of scientific biography as this life of Lamarck by Professor Packard. The importance and variety of Lamarck's work, his interesting personality and career, his biographical and historical environment, have all been charmingly depicted, and go to make up a portraiture which has seldom been excelled. "The name of Lamarck," says Professor Packard, "has been familiar to me from my youth up. When a boy, I used to arrange my collection of shells by the Lamarckian system, which had replaced the old Linnean classification. For over thirty years the Lamarckian factors of evolution have seemed to me to afford the foundation on which natural selection rests, to be the primary and efficient causes of organic change, and thus to account for the origin of variations, which Darwin himself assumed as the starting-point or basis of his selection theory. It is not lessening the value of Darwin's labors, to recognise the originality of Lamarck's views, the vigor with which he asserted their truth, and the heroic manner in which, against adverse and contemptuous criticism, to his dying day he clung to them."

Professor Packard has spent considerable time in Paris, gathering materials for his biography; he has visited the place of Lamarck's birth, examined the records of his family and connexions, and has studied all the accessible sources with enthusiasm. Portraits of Lamarck from old engravings, pictures of his birth-place and place of burial, reproductions of facsimiles of his hand-writing, with other illustrative material, adorn the work. A bibliography of the writings of Lamarck has also been added.

The Lamarckian theory of organic evolution has, through the labors of recent evolutionists and paleontologists, become a formidable rival of Darwinism, and as Professor Packard remarks, the prevalence of his "views in the United States, Germany, England, and especially in France, where its author is justly regarded as the real founder of organic evolution, has invested his name with a new interest, and led to a desire to learn some of the details of his life and work, and of his theory as he unfolded it in 1800 and subsequent years, and finally expounded it in 1809." The time, therefore, in Professor Packard's opinion, seems ripe for an extended sketch of Lamarck and his theory as well as of his work as a philosophical

biologist; and the translations of the writings of Lamarck, hitherto largely inaccessible, which Professor Packard has incorporated into the present volume, will go far towards reinstating the French inquirer into the rights of which for many years he was unjustly deprived. A considerable part of the translations of Lamarck's views on the evolution of man, morals, and the relation of science to religion, published in the present volume, appeared in *The Monist* for October, 1900. *μ.*

GESCHICHTE DER NEUEREN DEUTSCHEN PSYCHOLOGIE. Von *Max Dessoir*. Zweite völlig umgearbeitete Auflage. Zweiter Halbband. Berlin: Verlag von Carl Duncker. 1902. Pages, xv, 269. Price, 6 marks.

The present volume is the second installment of the second edition of Vol. I. of Prof. Max Dessoir's comprehensive *History of Modern German Psychology*. Professor Dessoir has divided the development of German psychology into the following periods: (1) From Leibnitz to the middle of the eighteenth century (the period of the founding of German psychology); (2) From 1750 to 1800 (the period of industrious encyclopædic research); (3) From 1800 to 1850 (the period of the dominance of speculation); and (4) From 1850 to the present time (the period of the upgrowth of the spirit of critical scientific inquiry). The first two periods are treated in the first volume of his work, (1) biographically and (2) technically; for it has been not only the author's purpose to exhibit the evolution of psychological thought and processes as purely objective products, but also to portray the historical and cultural background out of which German psychology has sprung, and from which the determining factors of the individual views of life have arisen. It is unnecessary to say that this task has been well and faithfully done.

The first volume, in its present second edition, has been considerably amplified. The author has gone more into detail than he did in the first edition, (continued work with the sources revealing much that was new to him,) so that the volume has now attained proportions which impart to it the value of a book of references and of sources, as well as that of a book of historical exposition,—a feature which has been enhanced by the addition of exhaustive indices.

Professor Dessoir hopes to be able to publish his second volume within four years.

THE WORLD AND THE INDIVIDUAL. Gifford Lectures. Second Series. Nature, Man, and the Moral Order. By *Josiah Royce, Ph. D., LL. D.*, Professor of the History of Philosophy in Harvard University. New York: The Macmillan Company. 1901. Pages, xvii, 480. Price, $2.25.

The discussions of the present volume form the second and concluding series of Dr. Royce's Gifford Lectures, delivered before the University of Aberdeen in January, 1900. The delay in their publication has been due to the careful revision, almost amounting to rewriting, to which Dr. Royce's expositions have been subjected. The reason for this was that while the first series of Dr. Royce's lec-

tures was devoted to the *single* problem of the Conception of Being, which dominated the entire discussion, in the present series the discussions have been entangled by the complicated relations of the Theory of Being "to various problems of empirical research and to the demands of our ethical consciousness." The scope of this closing volume includes, in Dr. Royce's own words, "a sketch of an idealistic Theory of Human Knowledge, an outline of a Philosophy of Nature, a doctrine about the Self, a discussion of the origin and destiny of the Human Individual, a summary consideration of the world as a Moral Order, a study of the Problem of Evil, and, finally, an estimate of all these views in the light of what seem to me to be the interests of Natural Religion;" "a large and manifold program," as Dr. Royce justly remarks, but one which was nevertheless required of him by his interpretation of his task as Gifford lecturer.

Dr. Royce has given us in his preface the personal history of the development of his metaphysical views and of their correlation with those of several of his colleagues. He has laid great stress upon the individual nature of his results, claiming that he has tried to give "not a perfunctory defence of the faith, and not a mere repetition of the common tradition of modern Idealism, but the expression of an individual experience of the problems at issue." He says modestly: "I do not want to make mere disciples; but I hope that I have helped some fellow-students toward a clearer knowledge of God and of themselves. Such knowledge, however, they can never get by merely accepting my views. They must use their own labor." And the labor required to read and digest a work of the profound and ultra-metaphysical character of Professor Royce's, will certainly contribute much to the attainment of that knowledge.

ALLGEMEINE AESTHETIK. Von Dr. Phil. *Jonas Cohn*, Privatdocenten an der Universität zu Freiburg i. B. Leipzig: Wilhelm Engelmann. 1901. Pages, x, 293. Price, 7 Marks.

It has been the purpose of Dr. Cohn to develop a system of æsthetics conceived as a purely critical, systematic, and philosophical science. His point of view is ultimately the Kantian, which seeks to make æsthetics an independent philosophical discipline and to define its boundaries exactly. According to Dr. Cohn, Kant was not entirely successful in establishing the exact nature of the contents of the science, nor even its precise significance. This was accomplished in a measure by the labors of subsequent German æstheticians, from Schiller to Hegel and F. Th. Vischer, although the critical equilibrium which distinguished the Kantian school was sorely disturbed by these investigators, the latter few of whom marked the beginning of a genuine intellectual anarchy of thought with regard to æsthetics, —an anarchy which it is Dr. Cohn's intention to remove.

The author refers to the dictum of R. Haym, made some forty-five years ago, that it was the goal of the philosophy of that time to recast *dogmatic* metaphysics into *transcendental*,—a phraseology which will be immediately intelligible to Kant-

ians. This task Dr. Cohn now feels himself called upon to perform, for æsthetics at least. It is, in his view, the purpose of æsthetics to investigate the peculiar species of *Werthe*, "values," criteria, or ratings, which hold sway in the realm of the beautiful and the artistic. The German word *Werth*, or value, is an ugly one to render into English, and its combinations, such as *Werthsysteme*, *Werthwissenschaft*, etc., are still more ugly and more meaningless in their literal English renderings. But the word is now the vogue in German professorial philosophies, and we shall doubtless continue to be tortured with it in their American imitations. In English we are content with "criteria," "norms," and "normative sciences," but the later Germans will have "values." Dr. Cohn prefers "value-sciences" to "normative sciences," and if he insists upon it we might compromise with the phrase "valential sciences," the word *valential* (from valence), although awaiting acceptance, having more euphony than the barbaric compounds with *value*. Be that as it may, Dr. Cohn's method of procedure, while inductive in character, strongly and rightly insists upon genuinely philosophical and metaphysical normative considerations, and is not disposed to allot to psychology or sociology, and much less to anthropology, the dominant influence in systematic æsthetical inquiry. *μ.*

SOURCE BOOK OF THE HISTORY OF EDUCATION FOR THE GREEK AND ROMAN PERIOD. By *Paul Monroe, Ph. D.*, Adjunct Professor of the History of Education, Teachers College, Columbia University. New York: The Macmillan Co. 1901. Pages, xiii, 515. Price, $2.25.

Dr. Monroe has rendered a distinct service to educational science in the present book of selections from the literary sources of the history of education, where he has brought together from the literature of antiquity the most important descriptions of the educational systems that obtained among the Greeks and Romans. The work is divided into two parts: The first consists of seven chapters dealing with old Greek education, the education of women in Greece, the new Greek education, the Greek educational theorists, philosophical, historical, and scientific, and the later cosmopolitan Greek education. In these chapters we have, on the educational ideals and institutions of the Greeks, selections from Plutarch, Thucydides, Xenophon, Aristophanes, Isocrates, and Plato; and on the educational theories of the Greeks, liberal selections from Plato, Aristotle, and Plutarch. The seven chapters of Part II. deal with the corresponding phases of Roman education. In this part the selections are made from Cicero, Suetonius, Plautus, Tacitus, Nepos, Marcus Aurelius, Horace, Martial, Seneca, Pliny, Juvenal, and Quintilian.

The translations which Dr. Monroe offers have been taken from the standard versions of such authors as Professors Jowett and Goodwin, and from the editions of the Bohn Library. The several periods, according to which the sources have been classified, Dr. Monroe has supplied a brief introductory sketch "indicating the general setting of the period to which it belongs, and the main principles of in-

terpretation to be followed." These introductory sketches are designed to furnish little more than a synopsis for study, the interpretation being purposely left in large degree to the students. In other words, the volume is designed as a text mainly, and we agree with Dr. Monroe in the belief that by the direct study which it thus involves "there will result, not only a more correct idea of the education of the classical period, but also a better apprehension of the meaning of education in its historical and contemporary aspects."

ACTES DU PREMIER CONGRÈS INTERNATIONAL D'HISTOIRE DES RELIGIONS, PARIS, 1900. Première partie séances générales. Paris: Ernest Leroux. 1901. Pages, xxi, 246.

After devoting some thirty pages to a description of the purposes and functions of the Congress, its rules, its ceremonial, social, and business meetings, its list of members, etc., the present first installment of the *Proceedings of the International Congress of the History of Religions*, held in Paris in 1900, is taken up with the discourses which were delivered on the general features of historical religious research, and its connexion with religious progress generally. The text of the proceedings opens with a characteristic letter from the late Prof. Max Müller; then follow two excellent discourses of welcome by Prof. Albert Réville and Monsieur G. Bonet-Maury. A. de Gubernatis speaks of the future of the history of religions; E. Senart discourses on Buddhism and the Yoga; Monsieur A. Sabatier speaks of Biblical criticism and the history of religions; I. Goldziher contributes a paper on Islamism and Parseeism; Goblet d'Alviella discusses the historical relations between religion and ethics; Jean Réville gives an address on the present condition of instruction in the history of religions; L. Marillier, whose recent tragic death has been much lamented, furnishes a discourse on folklore and the science of religions; E. Fournier de Flaix offers some extensive and interesting data, in a paper on the statistics of religions at the end of the nineteenth century; and finally, the Hon. Charles Carroll Bonney, president of the World's Fair Auxiliary Congresses of 1893, contributes an historical sketch of the Congress of Religion held in Chicago in that year. The proceedings will have value in various ways for students of religion.

ETHIK. Von *Max Wentscher*. I. Theil. Leipzig: Johann Ambrosius Barth. 1902. Pages, xii, 368. Price, 8.50 Marks.

Herr Wentscher's ethical programme is nothing short of militant, and bears a defiance on its face that bodes much ill for his opponents. It is outspokenly opposed to the spirit of our age, and to the spirit in which most ethical works are now written. The signature of our times is scientific, empirical, realistic, mechanical, practical. The key-notes of all expositions in the moral sciences are derived from the doctrines of evolution and its sociological and psychological analogues, and from the great overtowering generalisations of mechanical physics. Not so, how-

ever, the ethics of Herr Wentscher. It expressly disavows its modernity in this respect. It stands aloof from the tendencies of the epoch, and deals with them only to disapprove of them. It rejects the consequences for the control of practical life which have been deduced from the scientific theories now dominant; it is opposed to the transference of all such ideals into domains where, according to the author's opinion, they have not a shadow of validity. The modern tendency is avowedly deterministic and realistic; Herr Wentscher's ethics is avowedly undeterministic and idealistic. His ethics is, in fine, an individual, not a social, ethics.

In justification of his anti-modern position, Herr Wentscher remarks that possibly the spirit of the times is after all far broader and deeper than it would appear from the prevailing tendencies. He believes that there is hidden in the background of all the materialistic endeavors which seem to exercise so powerful a fascination on the life of the present day, a half recondite, dull, yet struggling impulse in humanity for absolutely liberating itself from the shackles of tradition, convention, and the blind worship of things as they are, of the historical *status quo*, and of the necessity of the present course of evolution. Everything seems to point, in his judgment, to a far more powerful longing and striving for clearness and light, and for a consequent untrammeled theory of purely individual and self-determined conduct. Herr Wentscher, now, would give scientific expression to this deep, obscure, and ominous undercurrent of the life of our century, and it is in this sense only that his ethics lays claim to modernity. It is to be a mirror of the spirit of the times, not as it appears at the surface, and in the loud brawlings of the day, but as it exists in its profound inward longings to bring humanity and life nearer to the goal which an ancient faith forefeelingly described in the words: "God made man after his own image." It is thus, to our author's mind, the business of ethics to point out the way of fulfilment for this longing after a mode of life in which we may bring to its fullest expression our likeness unto God, viz., our absolute freedom and our absolute perfection. Ethics must choose its criteria and ideals in accordance with this ambition, and not make them conform to the tendencies which the changing intellectual fashions of the day assume. It is to be the guide, and not the football, of the *Zeitgeist*. *μ.*

NOTES ON CHILD STUDY. By *Edward Lee Thorndike, Ph. D.*, Adjunct Professor of Psychology, Teachers College, Columbia University. Columbia University Contributions to Philosophy, Psychology, and Education. Vol. 8, Nos. 3–4. New York: The Macmillan Company. 1901. Pages, 157. Price, $1.00.

The present brochure consists of printed notes intended primarily for the use of classes at Teachers College, Columbia University. Since the author proposes to issue a new edition yearly, and confesses that they are incomplete and ill-proportioned, they will hardly be judged suitable for the general public, or for that matter for teachers generally of the subject, who have at their command the litera-

ture in a much more complete form. Of course, for instructors who have not the capacity or the incentive to seek the sources that are now easily accessible, they may be of value. It is, however, impossible for one not thoroughly conversant with the mechanism of the educational world to say that the sphere of their usefulness is limited; and it is quite likely that with the assistance which the author proffers to all who may use the book, and in view of the fact that busy teachers may thus be enabled to carry on experimental investigations with much economy of method and effort, they may be made to fulfil a distinct function and be productive of beneficial results. The subjects considered are: The Physical Growth of Children; General Physical Conditions and Particular Physical Defects; Unlearned Reactions; Learned Reactions; Sense Perception; Apperception; Attention; Imagery; Memory; Association; Reasoning; The Emotional Life of Children; Moral Education and Discipline; Adolescence; Directions for Practical Work; etc., etc.

The price of the volume, considering the fact that it contains but 157 pages and is unbound, is rather high, as are all our periodical university publications. *μ.*

THE WORSHIP OF AUGUSTUS CÆSAR. Derived from a Study of Coins, Monuments, Calendars, Æras and Astronomical and Astrological Cycles, the Whole Establishing a New Chronology and Survey of History and Religion. By *Alexander Del Mar*. New York: The Cambridge Encyclopedia Co. 1900. Pages, xxiv, 346.

This voluminous book is the product of the lucubrations of a man who takes a great interest in ancient chronology and the fixation of dates; but the ulterior purport of the book is religious. Alexander Del Mar, known chiefly for his various books on money, monetary systems, and the history of money in various countries, states the purpose of this present and latest book from his pen in the following words: "The abyss of misery and depravity from which Christianity redeemed the Roman Empire can never be fully understood without a knowledge of the impious worship of emperors to which Europe once bowed its credulous and terrified head. When this omitted chapter is restored to the history of Rome, Christianity will spring into a new and more vigorous life; for then only will it be perceived how deep and ineradicably its roots are planted, how lofty are its branches and how deathless are its aims." The book contains many interesting remarks, but the author decidedly lacks critique. He accepts unreliable statements which ought to be rejected. One instance will suffice to characterise his statements: On page 123 he fixes the era of the nativity of Buddha as 721 B. C. Among many correct statements, he says (following Lillie): "Buddha was born on the eighth day of the second month, viz., December 25th . . ." He further states that the "Messianic star stood over the place of his birth;" that "he was born among shepherds; that he was recognised by the seers or magi; his favorite disciple, of whom there were twelve, was Arjon; the duration of his long fast was forty days; his doctrines are

contained in the Baghant Geeta (*sic!*); he was condemned to death and he partook of a Last Supper with his disciples (Bishop Bigandet, II., 36); Buddha was cruelly murdered on the vernal equinox; he descended to hell to judge the dead, remained there three days and nights, rose again and ascended bodily to heaven. His principal sacrament was baptism; his flower the lotus; his epigraphic symbols the Latin and the Greek cross († +) and the mystic fan; his zodion was the Lamb; the sign of his future coming is the White Horse." P. C.

ALLGEMEINE PHYSIOLOGIE. Ein Grundriss der Lehre vom Leben. Von *Max Verworn*, Dr. Med. et Phil., Professor der Physiologie und Direktor des Physiologischen Instituts an der Universität Göttingen. Mit 295 Abbildungen. Dritte, neu bearbeitete Auflage. Jena: Verlag von Gustav Fischer. 1901. Pages, xii, 631. Price, bound, 17 Marks.

DAS NEURON IN ANATOMIE UND PHYSIOLOGIE. Vortrag gehalten in der gemeinschaftlichen Sitzung der medizinischen Hauptgruppe der 72. Versammlung deutscher Naturforscher und Aerzte zu Aachen am 19. September, 1900. In erweiterter Form herausgegeben. Von *Max Verworn*. Mit 22 Abbildungen im Text. Jena: Verlag von Gustav Fischer. 1900. Pages, 54.

We are glad to call attention to the appearance of a third edition of Dr. Max Verworn's well-known text-book of general physiology, which originally appeared in 1894, and of which the first chapter, treating of the objects and methods of physiological research, appeared in *The Monist* at about that time. The present edition has been increased by about 32 pages, and by some 10 new cuts. An English, French, Russian, and Italian translation of the work have now appeared, and the book in general has proved itself to be a useful manual. The point of view from which Dr. Verworn has approached his subject is that of *comparative physiology*, and in performing his task he has endeavored so far as possible to revert to the principles which guided the research of the great master of this science, Johannes Müller.

The same author has also given us in a printed lecture originally delivered in September, 1900, before the Congress of German Naturalists and Physicians, a concise synopsis of the researches which have been conducted in connexion with the doctrine of neurons. The idea lying at the foundation of the doctrine of neurons is that the ganglionary cells and the nervous fibres proceeding from them constitute a single unit. The axal cylinder of the nervous fibres, with its collateral and terminal ramifications, is, like the numerous dendrites, a continuation only of the ganglionary cell. This doctrine, which furnished the first monistic principle for the treatment of the nervous system, has been so fruitful in its influence in all practical and theoretical directions, that it may safely be said that the unusual activity and interest shown during the last ten years in neurological research has been nearly altogether due to the stimulus imparted to it by the doctrine of neurons. The doctrine has been the object of considerable adverse criticism, and has

been subjected to assaults on all sides. It is the opinion of Prof. Verworn, however, that its truth has not in the least been shaken and that it will continue to exercise a salutary influence in the future. There are 22 cuts in the brochure, and numerous bibliographical references of value.

NOTE.

Mrs. Mary Everest Boole, the writer of the article, "Suggestions for Increasing Ethical Stability," in the present *Monist*, is the widow of the famous mathematician and logician, George Boole, the author of the well-known treatise on *The Laws of Thought*, which has been characterised as marking "the greatest advance in logic since Aristotle." Mrs. Boole's uncle was the surveyor-general of India, after whom Mt. Everest was named. She became Professor Boole's assistant and afterwards his wife, working together with him on his logical and mathematical investigations until his death in 1864, and afterwards continuing on the psychological and educational side the labors which he had left unfulfilled. She says: "At his death numerous mathematicians wrote offering to help me. But I felt that accepting their co-operation would involve me in some connexion with what was then known as 'Boole's Method.' The mathematical world at that time were jealous and distrustful of any allusion to the psychological aspect of mathematics. I preferred to take a humble post in a college and study the application of Boole's method to psychology, *clinically* (so to speak), by trying its effect on solving the moral problems of school-girls. My book, *Symbolical Methods of Study*, grew out of Sunday evening talks with the college boarders. After a few years I met James Hinton, author of *Life in Nature*, etc., and, by his advice, gave up most of my college work and became his secretary. I taught him enough algebra to enable him to join me in an investigation of the connexion between the mathematical and the physiological aspects of psychology.

"About 1884 I gave a lecture to the Education Society about some forms of mental and moral aberration far more common in girl's schools then than they now are. I wrote on this and kindred topics in the Jewish press and then devoted some time to the psychological analysis of the mental conditions which go to make the majority of the human race interested in the questions of incarnation and miracle. Continuing my studies in psychology as seen from the medical aspect, under the direction of Henry Maudsley, M. D., the well-known brain-specialist, and of Helen Webb, M. B., of the Parent's Educational Union, lecturer on 'Neurotic Children' and on 'The Formation of Habit,' I wrote at Dr. Maudsley's request a text-book of *Mathematical Psychology* for the use of medical students."

The present article on "Ethical Stability" is the outcome of Mrs. Boole's practical studies on the lines last mentioned. It has been characterised by Professor James who heard the paper read, as "full of most suggestive matter, and as moving among the concrete facts of human nature in what to my mind is a refreshing way."